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The Sloan Canyon National Conservation Area

Proposed Resource Management Plan and Final Environmental Impact Statement

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BLM-LV-ES-05-020-5853

FES 05-26

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
Las Vegas Field Office
4701 N. Torrey Pines Drive
Las Vegas, Nevada 89130-2301

TAKE PRIDE IN AMERICA

In reply refer to: 1610-5.G.1.4

September 2005

Dear Reader:

Enclosed for your review is the Proposed Resource Management Plan (PRMP) and Final Environmental Impact Statement (FEIS) for the Sloan Canyon National Conservation Area (NCA), which contains the North McCullough Wilderness (Wilderness). The PRMP was prepared by the Bureau of Land Management (BLM) in consultation with cooperating agencies, taking into account public comments received during this planning effort. This PRMP provides a framework for the future management direction and appropriate use of the NCA and Wilderness, located in Clark County, Nevada. The document contains both land use planning decisions and implementing decisions to provide planning structure to facilitate management of the Sloan Canyon NCA. The PRMP is open for a 30-day review and protest period beginning September 30, 2005, the date the Environmental Protection Agency publishes the Notice of Availability of the FEIS in the *Federal Register*.

This PRMP and FEIS has been developed in accordance with the National Environmental Policy Act of 1969 (NEPA), the Federal Land Policy and Management Act of 1976, and the Clark County Conservation of Public Land and Natural Resources Act of 2002. The PRMP is largely based on Alternative C, the preferred alternative in the Draft Resource Management Plan/Environmental Impact Statement (RMP/EIS), which was released on March 25, 2005. This document contains the proposed plan, summary of changes made between the Draft RMP/EIS and PRMP, predictable impacts of the proposed plan, summary of the written and verbal comments received during the public review period of the Draft RMP/EIS, and responses to the comments received.

Any person who participated in the planning process for this PRMP, and has an interest which is or may be adversely affected, may protest approval of this PRMP and land use planning decisions contained within it (see 43 Code of Federal Regulations 1610.5-2) during this 30-day period. Only those persons or organizations who participated in the planning process leading to the PRMP may protest. The protesting party may raise only those issues submitted for the record during the planning process leading up to the publication of this PRMP. These issues may have been raised by the protesting party or others. New issues may not be brought into the record at the protest stage.

Protests must be filed with the BLM Director in writing. Regular mail protests should be sent to: Director (210), Attention – Brenda Williams, PO Box 66538, Washington DC 20035. Overnight mail should be sent to: Director (210), Attention – Brenda Williams, 1620 L Street, NW, Suite 1075, Washington DC 20036. Email and fax protests will not be accepted as valid protests unless the protesting party also provides the original letter by either regular or overnight mail postmarked by the close of the protest period. Under these conditions, BLM will consider the E-mail or fax protest as an advance copy and it will receive full consideration. If you wish to provide BLM with such advance notification, please direct E-mails to *Brenda_Hudgens-Williams@blm.gov* and faxes to (202) 452-5112 (Attn: BLM Protest Coordinator).

All protests must be postmarked on or before October 30, 2005 and shall contain, at minimum, the following information:

- The name, mailing address, telephone number, and interest of the person filing the protest.
- A statement of the part(s) of the PRMP, and the issue(s) being protested. To the extent possible, this should be done by reference to specific pages, paragraphs, sections, tables, maps, etc., included in the document.
- A copy of all documents addressing the issue(s) that the protesting party submitted during the planning process or a statement of the date they were discussed for the record.
- A concise statement explaining why the protestor believes the Nevada BLM State Director's proposed decision is believed to be incorrect. This is a critical part of your protest. Take care to document all relevant facts. As much as possible, reference or cite the planning documents, or available planning records (e.g. meeting minutes or summaries, correspondence, etc.).

The BLM Director, will render a decision on the protest. The decision will be in writing and will be sent to the protesting party by certified mail, return receipt requested. The decision of the BLM Director shall be the final decision of the Department of the Interior.

Individual respondents may request confidentiality. If you wish to withhold your name and street address from public review or from disclosure under the Freedom of Information Act, you must state this prominently at the beginning of your written protest. Such requests will be honored to the extent allowed by law. All submissions from organizations and businesses, and from individuals identifying themselves as representatives or officials of organizations and businesses, will be available for public inspection in their entirety.

Unlike land use planning decisions, implementing decisions are not subject to protest under planning regulations but are subject to administrative remedies and review, primarily through appeals to the Office of Hearings and Appeals (Interior Board of Land Appeals). Implementation decisions generally constitute BLM's final approval allowing on-the ground actions to proceed. These types of decisions require site-specific planning and NEPA analysis. Where implementation decisions are made as part of the land use planning process, they are still subject to the appeals process or other administrative review as prescribed by specific resource program regulations after BLM resolves the protests to land use planning decisions and makes a decision to adopt or amend the Resource Management Plan (RMP).

These administrative remedies for final implementation decisions usually take the form of appeals to Office of Hearings and Appeals, though for certain proposed or non-final implementation decisions, such as proposed grazing decisions, the regulations provide for an internal agency review (usually a protest to the Authorized Officer) which must be completed before the final implementation decision can be appealed to the Office of Hearing and Appeals. This type of protest to the Authorized Officer should not be confused with the protest of land use planning decisions to the BLM Director.

Upon resolution of any protests, an Approved Plan and Record of Decision (ROD) will be issued. The Approved Plan will be mailed to all who participated in the planning process and will be available to all parties through the "Planning" page of the BLM national website (*http://www.blm.gov*), or by mail upon request. The Approved RMP and ROD will include the appeals process for implementing decisions that may be appealed to the Office of Hearing and Appeals following its publication.

Sincerely,

Juan Palma

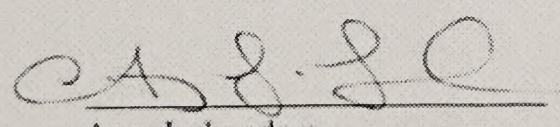
Juan Palma
Field Manager, Las Vegas

Sloan Canyon National Conservation Area
Proposed Resource Management Plan and Final Environmental Impact Statement
Clark County, Nevada

Draft ( ) Final (X)

Lead Agency:	United States Department of Interior, Bureau of Land Management
Project Location:	Clark County, Nevada
For Further Information Contact:	Charles Carroll BLM Las Vegas Field Office 4701 N. Torrey Pines Drive Las Vegas, Nevada 89130-2301 Telephone: (702) 515-5000
Abstract:	In November 2002 Congress designated the Sloan Canyon NCA to preserve and protect a portion of southern Nevada's Mojave Desert as a permanent asset for future generations. The Sloan Canyon NCA Act requires the BLM to develop a plan for the appropriate use and management of the NCA. The PRMP and FEIS describes the proposed plan for the management of public lands and resources within the NCA and Wilderness. The PRMP is essentially the preferred alternative, Alternative C from the Draft RMP/EIS, with changes reflecting public comment, collaboration with cooperating agencies during the preparation of the PRMP, and BLM's internal comments and analysis.
Date Proposed Plan Issued:	September 30, 2005
Protests, if any, are to be filed with:	Director (210), Attention – Brenda Williams, PO Box 66538, Washington DC 20035
Overnight Mail Address for Protests:	Director (210), Attention – Brenda Williams, 1620 L Street, NW., Suite 1075, Washington DC 20036.
To expedite consideration, in addition to the original sent by mail or overnight mail, a copy of the protest may be sent by:	E-mail to *Brenda_Hudgens-Williams@blm.gov* Fax to (202) 452-5112 (Attn: BLM Protest Coordinator).
Date Protests Must be Postmarked:	October 30, 2005

Responsible Official for Proposed Plan:



September 26, 2005

Amy L. Lueders
Acting State Director, Nevada

Date

#62383940 ID880677631 HD 243 .N3 S663 2005 c. 2

SLOAN CANYON NATIONAL CONSERVATION AREA

PROPOSED RESOURCE MANAGEMENT PLAN
AND
FINAL ENVIRONMENTAL IMPACT STATEMENT

BUREAU OF LAND MANAGEMENT
Las Vegas Field Office
Las Vegas, Nevada

September 2005

TABLE OF CONTENTS

TABLE OF CONTENTS

EXECUTIVE SUMMARY ES-1
1. PURPOSE AND NEED 1-1
1.1 BACKGROUND 1-3
1.2 DESCRIPTION OF THE NATIONAL CONSERVATION AREA 1-4
1.3 PURPOSE AND NEED FOR THE RESOURCE MANAGEMENT PLAN 1-6
1.4 THE PLANNING PROCESS 1-7
1.4.1 Planning Issues 1-8
1.4.2 Planning Criteria 1-10
1.5 RELATIONSHIP TO STATUTES, REGULATION, AND POLICY 1-10
1.6 CONSISTENCY WITH BLM AND OTHER AGENCY PLANS 1-10
1.7 RESOURCE-SPECIFIC PLANS FOR THE NCA 1-10
1.8 IMPLEMENTATION AND MONITORING OF THE RESOURCE MANAGEMENT PLAN 1-11

2. PROPOSED RESOURCE MANAGEMENT PLAN 2-1
2.1 DEVELOPMENT OF THE PROPOSED RESOURCE MANAGEMENT PLAN 2-2
2.2 SELECTION OF THE PROPOSED MANAGEMENT PLAN 2-3
2.3 CHANGES FROM THE DRAFT TO THE PROPOSED RMP/FEIS 2-4
2.4 THE SLOAN CANYON NATIONAL CONSERVATION AREA PROPOSED RESOURCE MANAGEMENT PLAN 2-4
2.4.1 Management Emphasis Areas 2-5
2.4.2 Recreation 2-7
2.4.3 North McCullough Wilderness 2-16
2.4.4 Cultural Resources 2-23
2.4.5 Special Designations—Areas of Critical Environmental Concern 2-26
2.4.6 Visual Resources 2-26
2.4.7 Interpretation 2-28
2.4.8 Facilities 2-29
2.4.9 Lands and Realty 2-31
2.4.10 Transportation (Registered Motorized Vehicles) 2-32
2.4.11 Vegetation Management (including Special Status Species) 2-34
2.4.12 Wildlife Management (including Special Status Species) 2-38
2.4.13 Wildland Fire Management 2-40
2.4.14 Water Resources and Quality 2-40
2.4.15 Air Quality 2-40
2.4.16 Livestock Grazing 2-40
2.4.17 Geology and Soils 2-41
2.4.18 Minerals 2-41
2.4.19 Abandoned Mines 2-42
2.4.20 Hazardous Materials 2-42
2.5 MANAGEMENT ACTIONS CONSIDERED BUT NOT INCLUDED 2-42
2.5.1 Extensive OHV Trail System 2-42
2.5.2 Recreational Target Shooting Facilities 2-43

3. AFFECTED ENVIRONMENT 3-1
3.1 PHYSIOGRAPHY 3-1
3.2 CLIMATE 3-1
3.3 RECREATION 3-2
3.3.1 Recreation Use by Area 3-5

3.3.1.1 Northwestern NCA 3-5
3.3.1.2 Northeastern NCA 3-5
3.3.1.3 North McCullough Wilderness and Surrounding NCA 3-5
3.3.1.4 Southeastern NCA 3-6
3.3.2 Special Recreation Permits 3-6
3.4 NORTH MCCULLOUGH WILDERNESS 3-6
3.4.1 Wilderness Characteristics: Naturalness, Solitude, and Opportunities for Primitive and Unconfined Recreation 3-6
3.4.2 Resource Conditions 3-8
3.4.3 Wilderness Recreation Use 3-9
3.4.4 Disturbance, Development, and Wilderness Impacts 3-10
3.4.5 Regulatory Framework 3-11
3.5 CULTURAL RESOURCES 3-13
3.5.1 Cultural Context 3-13
3.5.2 Cultural Resource Inventories 3-14
3.5.3 Sensitivity Model 3-15
3.5.4 Cultural Affiliation 3-16
3.6 SPECIAL DESIGNATIONS—AREAS OF CRITICAL ENVIRONMENTAL CONCERN 3-16
3.7 VISUAL RESOURCES 3-16
3.7.1 Current Management 3-18
3.7.2 Visual Resource Inventory 3-19
3.8 INTERPRETATION 3-19
3.9 FACILITIES 3-19
3.10 LANDS AND REALTY 3-19
3.10.1 Existing Rights-of-Way 3-21
3.10.1.1 Power Lines and Access Roads 3-21
3.10.1.2 Flood Control Facilities 3-21
3.10.1.3 Communication Facilities 3-21
3.10.2 City of Henderson Rights-of-Way 3-21
3.10.2.1 Northern Corridor 3-23
3.10.2.2 Southern Corridor 3-23
3.10.2.3 Conceptual Design 3-23
3.10.3 Filming and Photography 3-24
3.11 TRANSPORTATION (REGISTERED MOTORIZED VEHICLES) 3-24
3.12 VEGETATION MANAGEMENT 3-24
3.12.1 Vegetation Associations 3-27
3.12.1.1 Volcanic Basalt Slope Association 3-27
3.12.1.2 Moderate Creosote 3-27
3.12.1.3 Sparse Creosote/Bursage Mix 3-27
3.12.1.4 Desert Wash Associations 3-29
3.12.2 Special Status Species 3-29
3.12.3 Noxious and Invasive Weeds 3-30
3.13 WILDLIFE MANAGEMENT 3-33
3.13.1 Regulatory Framework 3-33
3.13.1.1 Hunting 3-33
3.13.1.2 Reptile Collecting 3-33
3.13.1.3 Migratory Birds 3-34
3.13.2 Potential Wildlife Species 3-34
3.13.2.1 Mammals 3-34
3.13.2.2 Birds 3-34
3.13.2.3 Reptiles 3-34

3.13.3 Special Status Species 3-35
3.13.3.1 Federally Protected Species 3-35
3.13.3.2 BLM Sensitive Species 3-35
3.13.3.3 Nevada Natural Heritage Program 3-39
3.13.3.4 Clark County Multiple Species Habitat Conservation Plan 3-39
3.13.4 Sloan Canyon Potential Habitat Models 3-40
3.13.4.1 Desert Tortoise 3-40
3.13.4.2 Gila Monster 3-40
3.13.4.3 Chuckwalla 3-42
3.13.4.4 Desert Bighorn Sheep 3-42
3.13.4.5 Phainopepla 3-45
3.13.4.6 Prairie Falcon 3-45
3.14 WILDLAND FIRE MANAGEMENT 3-45
3.15 WATER RESOURCES AND QUALITY 3-49
3.15.1 Groundwater Resources 3-51
3.15.2 Water Quality 3-51
3.16 AIR QUALITY 3-51
3.16.1 Ambient Air Quality 3-53
3.16.2 Ambient Air Quality Concentrations 3-53
3.16.3 Criteria Pollutants Designated as Nonattainment 3-53
3.16.3.1 Carbon Monoxide 3-53
3.16.3.2 Particulate Matter 3-54
3.16.3.3 Ozone 3-54
3.16.4 Air Quality Modeling 3-54
3.17 GRAZING 3-54
3.18 GEOLOGY AND SOILS 3-56
3.18.1 Geology 3-56
3.18.2 Soils 3-57
3.19 MINERALS 3-57
3.20 ABANDONED MINES 3-60
3.21 HAZARDOUS MATERIALS MANAGEMENT 3-62
3.22 SOCIOECONOMICS 3-62
3.22.1 Demographic Characteristics 3-62
3.22.1.1 Per-Capita Personal Income 3-63
3.22.2 Economic Characteristics 3-64
3.22.3 Social Conditions 3-65
3.22.3.1 City of Henderson 3-65
3.22.3.2 Boulder City 3-66
3.23 ENVIRONMENTAL JUSTICE 3-67

4. ENVIRONMENTAL CONSEQUENCES 4-1
4.1 INTRODUCTION 4-1
4.1.1 Methodology 4-1
4.1.2 Impact Terminology 4-2
4.2 IMPACTS FROM NORTH MCCULLOUGH ROAD RIGHTS-OF-WAY 4-3
4.3 IMPACTS TO RECREATION 4-4
4.3.1 To Recreation from Recreation 4-5
4.3.2 To Recreation from the North McCullough Wilderness 4-7
4.3.3 To Recreation from Cultural Resources 4-9
4.3.4 To Recreation from Visual Resources 4-10
4.3.5 To Recreation from Interpretation 4-10

4.3.6 To Recreation from Facilities....4-10
4.3.7 To Recreation from Lands and Realty....4-11
4.3.8 To Recreation from Transportation....4-11
4.3.9 To Recreation from Vegetation Management....4-11
4.3.10 To Recreation from Wildlife Management....4-11
4.3.11 To Recreation from Livestock Grazing....4-12
4.4 IMPACTS TO THE NORTH MCCULLOUGH WILDERNESS....4-12
4.4.1 To Wilderness from Recreation....4-12
4.4.2 To Wilderness from the North McCullough Wilderness....4-13
4.4.3 To Wilderness from Cultural Resources....4-15
4.4.4 To Wilderness from Visual Resources....4-15
4.4.5 To Wilderness from Interpretation....4-15
4.4.6 To Wilderness from Vegetation Management....4-16
4.4.7 To Wilderness from Wildlife Management....4-16
4.4.8 To Wilderness from Livestock Grazing....4-16
4.5 IMPACTS TO CULTURAL RESOURCES....4-16
4.5.1 To Cultural Resources from Management Emphasis Areas....4-17
4.5.2 To Cultural Resources from Recreation....4-17
4.5.3 To Cultural Resources from the North McCullough Wilderness....4-17
4.5.4 To Cultural Resources from Cultural Resources....4-18
4.5.5 To Cultural Resources from Interpretation....4-19
4.5.6 To Cultural Resources from Facilities....4-19
4.5.7 To Cultural Resources from Transportation....4-20
4.5.8 To Cultural Resources from Vegetation Management....4-20
4.5.9 To Cultural Resources from Wildlife Management....4-20
4.5.10 To Cultural Resources from Wildland Fire Management....4-20
4.5.11 To Cultural Resources from Livestock Grazing....4-20
4.6 IMPACTS TO VISUAL RESOURCES....4-20
4.6.1 To Visual Resources from Recreation....4-21
4.6.2 To Visual Resources from the North McCullough Wilderness....4-21
4.6.3 To Visual Resources from Cultural Resources....4-22
4.6.4 To Visual Resources from Visual Resources....4-22
4.6.5 To Visual Resources from Interpretation....4-22
4.6.6 To Visual Resources from Facilities....4-22
4.6.7 To Visual Resources from Lands and Realty....4-23
4.6.8 To Visual Resources from Vegetation Management....4-23
4.6.9 To Visual Resources from Wildlife Management....4-23
4.6.10 To Visual Resources from Wildland Fire Management....4-23
4.6.11 To Visual Resources from Livestock Grazing....4-23
4.7 IMPACTS TO INTERPRETATION....4-23
4.7.1 To Interpretation from Recreation....4-24
4.7.2 To Interpretation from the North McCullough Wilderness....4-24
4.7.3 To Interpretation from Cultural Resources....4-24
4.7.4 To Interpretation from Interpretation....4-25
4.7.5 To Interpretation from Facilities....4-25
4.7.6 To Interpretation from Transportation....4-25
4.8 IMPACTS TO FACILITIES....4-25
4.8.1 To Facilities from Recreation....4-26
4.8.2 To Facilities from the North McCullough Wilderness....4-26
4.8.3 To Facilities from Cultural Resources....4-27
4.8.4 To Facilities from Facilities....4-27

4.8.5 To Facilities from Transportation....4-27
4.8.6 To Facilities from Wildlife Management....4-27
4.8.7 To Facilities from Wildland Fire Management....4-27
4.9 IMPACTS TO LANDS AND REALTY....4-27
4.9.1 To Lands and Realty from Visual Resources....4-28
4.9.2 To Lands and Realty from Lands and Realty....4-28
4.9.3 To Lands and Realty from Transportation....4-28
4.9.4 To Lands and Realty from Vegetation Management....4-28
4.9.5 To Lands and Realty from Wildlife Management....4-28
4.9.6 To Lands and Realty from Wildland Fire Management....4-29
4.10 IMPACTS TO TRANSPORTATION (REGISTERED MOTORIZED VEHICLES)....4-29
4.10.1 To Transportation from Recreation....4-29
4.10.2 To Transportation from Facilities....4-29
4.10.3 To Transportation from Transportation....4-29
4.11 IMPACTS TO VEGETATION MANAGEMENT....4-30
4.11.1 To Vegetation from Recreation....4-30
4.11.2 To Vegetation from the North McCullough Wilderness....4-30
4.11.3 To Vegetation from Facilities....4-31
4.11.4 To Vegetation from Lands and Realty....4-31
4.11.5 To Vegetation from Transportation....4-31
4.11.6 To Vegetation from Vegetation Management....4-31
4.11.7 To Vegetation from Wildlife Management....4-32
4.11.8 To Vegetation from Livestock Grazing....4-32
4.12 IMPACTS TO WILDLIFE MANAGEMENT....4-32
4.12.1 To Wildlife from Recreation....4-33
4.12.2 To Wildlife from Petroglyph Management Area....4-33
4.12.3 To Wildlife from the North McCullough Wilderness....4-34
4.12.4 To Wildlife from Cultural Resources....4-34
4.12.5 To Wildlife from Visual Resources....4-34
4.12.6 To Wildlife from Facilities....4-34
4.12.7 To Wildlife from Lands and Realty....4-35
4.12.8 To Wildlife from Transportation....4-35
4.12.9 To Wildlife from Vegetation Management....4-35
4.12.10 Impacts from Wildlife Management....4-35
4.12.11 To Wildlife from Wildland Fire Management....4-35
4.12.12 To Wildlife from Livestock Grazing....4-35
4.13 IMPACTS TO AIR QUALITY....4-36
4.13.1 To Air Quality from Facilities....4-36
4.13.2 To Air Quality from Lands and Realty....4-36
4.13.3 To Air Quality from Transportation....4-36
4.13.4 To Air Quality from Vegetation Management....4-36
4.13.5 To Air Quality from Wildland Fire Management....4-36
4.13.6 To Air Quality from Air Quality....4-37
4.14 IMPACTS TO LIVESTOCK GRAZING....4-37
4.14.1 To Livestock Grazing from Vegetation Management....4-37
4.14.2 To Livestock Grazing from Livestock Grazing....4-37
4.15 IMPACTS TO SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE....4-37
4.15.1 To Socioeconomics from Recreation....4-38
4.15.2 To Socioeconomics from Facilities....4-38
4.15.3 To Socioeconomics from Lands and Realty....4-39
4.15.4 To Socioeconomics from Transportation....4-39

4.15.5 To Socioeconomics from Livestock Grazing 4-39
4.15.6 Environmental Justice 4-39
4.16 CUMULATIVE IMPACTS 4-40
4.16.1 Cumulative Analysis Methodology 4-40
4.16.2 Temporal and Spatial Boundaries 4-41
4.16.3 Past, Present, and Reasonably Foreseeable Future Actions 4-41
4.16.4 Cumulative Impacts By Resource Category 4-42
4.17 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES 4-45
4.18 UNAVOIDABLE ADVERSE IMPACTS 4-45
4.19 RELATIONSHIP BETWEEN LOCAL SHORT-TERM USES AND LONG-TERM PRODUCTIVITY 4-46

5. CONSULTATION AND COORDINATION 5-1
5.1 INFORMATION DISSEMINATION 5-1
5.1.1 Project Website 5-1
5.1.2 Project Mailers 5-1
5.1.3 Legal Notices and Public Announcements 5-2
5.1.4 Public Information Repositories 5-3
5.2 PUBLIC SCOPING 5-3
5.2.1 Scoping Meetings 5-3
5.2.2 Scoping Results 5-4
5.3 COMMUNITY INFORMATION MEETING 5-4
5.4 DRAFT RESOURCE MANAGEMENT PLAN/ENVIRONMENTAL IMPACT STATEMENT 5-5
5.4.1 Public Hearings 5-5
5.4.2 Hearing Results 5-5
5.5 AGENCY CONSULTATION AND COORDINATION 5-6
5.6 NATIVE AMERICAN TRIBES 5-7
5.7 MEETING SUMMARY 5-8
5.8 LIST OF PREPARERS AND REVIEWERS 5-9

LIST OF APPENDICES

APPENDIX A. Enacting Legislation and Management Guide
APPENDIX B. Recreation Monitoring Plan
APPENDIX C. North McCullough Wilderness Management Plan
APPENDIX D. Cultural Resources Management Plan
APPENDIX E. Visual Resource Management
APPENDIX F. Interpretive Strategy and Environmental Education Strategy
APPENDIX G. Litter Cleanup Plan and Public Lands Awareness Campaign
APPENDIX H. Vegetation Restoration Strategy
APPENDIX I. Biological Management Strategy
APPENDIX J. Comments and Responses
APPENDIX K. Agency Correspondence
APPENDIX L. Biological Assessment

ACRONYMS
GLOSSARY
REFERENCES

LIST OF FIGURES

Figure 1.1. Sloan Canyon NCA Planning Area 1-2
Figure 1.2. Sloan Canyon National Conservation Area Location Map 1-5
Figure 1.3. Sloan Canyon Planning Process 1-9
Figure 2.1. Management Emphasis Areas 2-6
Figure 2.2. Hiking 2-9
Figure 2.3. Equestrian Use 2-10
Figure 2.4. Mountain Biking 2-11
Figure 2.5. Dogs 2-13
Figure 2.6. Camping 2-15
Figure 2.7. Petroglyph Management Area 2-18
Figure 2.8. North McCullough Wilderness Hiking 2-21
Figure 2.9. Visual Resource Management Classes 2-27
Figure 2.10. Proposed Facilities 2-30
Figure 2.11. Sloan Canyon Lands Rights-of-Way 2-33
Figure 2.12. Sloan Canyon Roads Registered Motorized Vehicles 2-35
Figure 2.13. Vegetation Disturbance Management 2-37
Figure 3.1. BLM Las Vegas Office Shooting, Camping, and OHV Closures 3-3
Figure 3.2. Disturbed Areas within the NCA 3-4
Figure 3.3. North McCullough Wilderness 3-7
Figure 3.4. North McCullough Wilderness Disturbances and Developments 3-12
Figure 3.5. Sloan Canyon Rock Art Site ACEC 3-17
Figure 3.6. Visual Resource Inventory Classes 3-20
Figure 3.7. Existing and Authorized Rights-of-Way 3-22
Figure 3.8. Transportation System 3-25
Figure 3.9. Roads and Routes Proposed for Construction and Potential Registered Motorized Vehicle Designation 3-26
Figure 3.10. Vegetation Associations in Sloan Canyon NCA 3-28
Figure 3.11. Potential Habitat for Special Status Plant Species 3-31
Figure 3.12. Potential Habitat for Noxious Weed Invasions 3-32
Figure 3.13. Potential Habitat for Desert Tortoise 3-41
Figure 3.14. Potential Habitat for Gila Monster 3-43
Figure 3.15. Potential Habitat for Chuckwalla 3-44
Figure 3.16. Bighorn Sheep Habitat 3-46
Figure 3.17. Potential Habitat for Phainopepla 3-47
Figure 3.18. Potential Habitat for Raptors (Nesting and Fledging) 3-48
Figure 3.19. Water Resources and Quality 3-50
Figure 3.20. Air Quality Non-Attainment Area 3-52
Figure 3.21. Hidden Valley Allotment 3-55
Figure 3.22. NRCS Soil Types Sloan Canyon NCA 3-58
Figure 3.23. Existing Locatable Mineral Mining Claims 3-59
Figure 3.24. Identified Abandoned Mines 3-61
Figure 3.25. Personal Income Trends 1990–2001 (2000$) 3-64
Figure 3.26. Clark County Employment Trends by Industry, 1990–2000, SIC data 3-65
Figure 3.27. Clark County Employment by Industry, 2002, NAICS Data 3-66
Figure 3.28. Population Ethnicity for Clark County and State of Nevada 3-68

LIST OF TABLES

Table ES-1. Summary of the Management Direction ES-9
Table 3.1. North McCullough Wilderness Disturbances and Developments 3-10
Table 3.2. Archaeological Prehistoric Sensitivity Classes 3-16
Table 3.3. Existing Landscape Modifications 3-18
Table 3.4. Visual Resource Management Classes and Objectives 3-18
Table 3.5. Flora Potentially Occurring in Sloan Canyon NCA 3-29
Table 3.6. Fauna Special Status Species Potentially Occurring in Sloan Canyon NCA 3-36
Table 3.7. National Ambient Air Quality Standards 3-53
Table 3.8. Livestock Grazing on the Hidden Valley Allotment 1990–2002 3-56
Table 3.9. Soil Types Within Sloan Canyon NCA 3-60
Table 3.10. Status of Abandoned Mine Sites Located Within the NCA 3-62
Table 3.11. Population Density of Clark County, Nevada 3-63
Table 3.12. Population Centers Within Clark County, Nevada 3-63
Table 3.13. Median Household Money Income, 1999 3-68
Table 3.14. Percentage of Persons Below Poverty, 1999 3-68
Table 4.1. Impacts from the North McCullough Road and Trail - Northern Corridor 4-4
Table 5.1. Public Scoping and Tribal Information Meetings 5-4
Table 5.2. Summary of Consultation Activities 5-8
Table 5.3. Bureau of Land Management Preparers and Reviewers 5-9
Table 5.4. Booz Allen Hamilton Team Preparers and Reviewers 5-10
Table 5.5. Cooperating Agencies' Representatives 5-12

EXECUTIVE SUMMARY

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INTRODUCTION

The Cities of Las Vegas and Henderson, in Clark County, Nevada, form one of the fastest growing metropolitan areas in the United States. In November 2002, Congress designated the Sloan Canyon National Conservation Area (NCA) and the North McCullough Wilderness through the Clark County Conservation of Public Land and Natural Resources Act of 2002 (Clark County Act) to preserve and protect a portion of southern Nevada's Mojave Desert as a permanent asset for future generations. The 48,438-acre NCA forms the mountainous southern skyline of the City of Henderson and Las Vegas and contains important cultural resources and archaeological sites. The centerpiece of the NCA is the Sloan Canyon Petroglyph Site, one of the most significant cultural resources in southern Nevada. More than 300 rock art panels with nearly 1,700 designs represent native cultures dating from the Archaic to historic era. Although residential housing, schools, parks, and businesses will eventually border much of the northern and western edges of the NCA, at this time the conservation area is undeveloped and sparsely used. There are few roads and no visitor facilities, there is no single entrance, and most visitors never come into contact with Bureau of Land Management (BLM) staff. However, because use of the NCA will likely change dramatically in coming years, the BLM is challenged to develop management guidance that will be responsive to visitor needs and protective of the NCA's valuable resources.

The BLM has prepared this Proposed Resource Management Plan (PRMP) and Final Environmental Impact Statement (FEIS) to provide guidance in managing public lands in the Sloan Canyon NCA for the next 15 to 20 years. The guidance provided in the PRMP incorporates the vision of the NCA, which is to manage the NCA to preserve, protect, and enhance the area's cultural and natural resources for the present and future generations. This PRMP was prepared, in part, based on the comments provided by the public, tribes, and federal, State, and local governments on the Draft Resource Management Plan (RMP)/Environmental Impact Statement (EIS), which compared a range of management alternatives and identified their associated environmental consequences. This PRMP contains mainly those components of the Draft RMP/EIS that provide a concise description of the Proposed Management Plan. Following a 30-day protest period for the PRMP and after the 60-day Governor's consistency review, a Record of Decision would be prepared and published and the RMP would be approved.

This PRMP contains management direction related to both general land use planning decisions and implementing decisions. The land use planning decisions establish goals and objectives for managing the NCA's resources, as well as associated actions and uses. Implementation decisions, on the other hand, constitute BLM's final approval for on-the-ground actions to proceed. Anyone who participated in the RMP process and has an interest that may be adversely affected may protest the land use planning decisions contained in the PRMP (43 Code of Federal Regulations [CFR] 1610.5-2). Protests may raise only those issues that were submitted for the record during the planning process. Protests must be submitted to the BLM Director during the 30-day protest period. The Dear Reader Letter provides a detailed explanation on how to submit a protest. After that time, there is no further opportunity for decision review or administrative remedies for protest resolution. Unlike land use decisions, implementation decisions are not subject to protest but are subject to administrative remedies and review, primarily through appeals to the Office of Hearings and Appeals (BLM 2004a). The Summary of the Management Direction (Table ES-1) indicates which actions are land use and which are implementation.

This PRMP was prepared using BLM's planning regulations and guidance issued under the authority of the Federal Land Policy and Management Act of 1976 (FLPMA). The FEIS is also included to meet the requirements of the National Environmental Policy Act of 1969, Council on Environmental Quality

regulations for implementing National Environmental Policy Act (40 CFR 1500–1508), and requirements of the BLM's National Environmental Policy Act Handbook 1790-1.

PURPOSE AND NEED FOR THE RESOURCE MANAGEMENT PLAN

Title VI of the Clark County Act, hereafter referred to as the Sloan Canyon NCA Act, directs BLM to manage the NCA in a manner that conserves, protects, and enhances the Conservation Area's resources for the benefit and enjoyment of present and future generations. The Sloan Canyon NCA Act identifies cultural, archaeological, natural, wilderness, scientific, geological, historical, biological, wildlife, educational, and scenic resources as important reasons for the establishment of the NCA. The designation of the North McCullough Wilderness, administered under the Wilderness Act of 1964 and the Clark County Act, Title II ("Wilderness Areas"), requires that approximately 14,763 acres within the NCA are preserved and protected in their natural, primitive condition.

The purpose of this RMP is to provide BLM Las Vegas Field Office with comprehensive framework for managing the NCA and the North McCullough Wilderness. This PRMP is a public, detailed document that defines management polices and actions. The RMP—

- Specifies where and under what circumstances particular activities would be allowed within the NCA
- Updates the existing management policies for lands within the NCA, including the North McCullough Wilderness, and the resource allocations affecting the NCA, consistent with the spirit and intent of the Sloan Canyon NCA Act
- Incorporates available new data
- Resolves issues identified during public scoping
- Integrates or modifies uses of public land that have occurred since the *Proposed Las Vegas Resource Management Plan and Final Environmental Impact Statement* (BLM 1998a)
- Provides public land management measures in accordance with the FLPMA, BLM's Land Use Planning Handbook, and other existing statues, regulations, and policy.

The RMP is needed for the following reasons:

- To comply with the Sloan Canyon NCA Act, which established the NCA. The legislation mandates that BLM consult with the State of Nevada, the City of Henderson, Clark County, and any other interested persons to develop a management plan for the conservation area
- To comply with BLM National Landscape Conservation System policy. All NCAs are required to have a stand-alone RMP that consolidates all land use plans and implementation or activity plans relevant to the planning area (BLM Instruction Bulletin No. 2001-022, February 22, 2002).

VISION

The BLM developed the following vision for managing the NCA through discussions with cooperating agencies, from input received during the public scoping process, and from the direction, intent, and spirit of the Sloan Canyon NCA Act.

The BLM will manage the Sloan Canyon NCA to preserve, protect, and enhance the area's cultural features and natural resources and wilderness values for the benefit and enjoyment of present and future generations by—

- Protecting the Sloan Canyon Petroglyph Site and respecting the canyon for its importance to Native Americans
- Providing education on the importance of preserving and protecting the area's cultural, natural, and wilderness values
- Providing information and education on Sloan Canyon NCA's resources in a creative manner
- Providing recreational opportunities that are compatible with and protect the various elements of the natural landscape.

PLANNING PROCESS AND PUBLIC INVOLVEMENT

The BLM land use planning process is guided by laws, regulations, and policies that require the agency to seek public involvement at key points in the development and analysis of management options. In addition, the Sloan Canyon NCA Act requires BLM to coordinate with local governments and involve interested members of the public when developing this management plan. The RMP was developed through an open, collaborative public process and was based on public input solicited throughout the planning effort. For example, input received on the Draft RMP/EIS was considered and incorporated, as appropriate, in this PRMP.

The Notice of Intent, published in the *Federal Register* on September 15, 2003, formally announced the beginning of the Sloan Canyon NCA planning process. The notice encouraged the public and interested State, local, and tribal governments to participate in determining issues to be addressed through the management alternatives and analyzed in the EIS. In addition, information regarding the planning process was distributed through legal notices in newspapers, media releases issued to local television and radio stations, and informal flyers posted in community areas.

Scoping for the Draft RMP/EIS involved asking the public, interested tribes, and other agencies for general approaches and specific ideas about how the NCA and its resources might be managed. BLM conducted four public scoping meetings, co-hosted by the City of Henderson, City of Boulder City, and Clark County; three tribal information meetings; and numerous meetings with tribes, local governments, and other cooperating agencies. The comments received from these meetings, by mail, and from the project's website provided many well-considered ideas, as well as identified related issues, concerns, and potential impacts. These contributions formed a foundation for developing management approaches analyzed in the Draft RMP/EIS. A majority of the 512 comments received addressed recreation, access and transportation, and cultural resources, with widespread agreement that the Sloan Canyon Petroglyph Site should be protected from the impact of visitation, vandalism, and theft. Comments pertaining to recreation uses ranged from hiking trails and mountain biking to off-highway vehicle (OHV) use and recreational target shooting. Access and transportation suggestions ranged from constructing no new roads to identifying new road locations and access points.

BLM announced the availability of the Draft RMP/EIS for public review and comment in the *Federal Register* on March 25, 2005. This announcement initiated a 90-day public comment period that closed on June 23, 2005. Governmental agencies, tribes, and the public were invited to submit their comments by mail, through the project's website, e-mail, and fax, and at public hearings held on May 10 and 11, 2005.

Approximately 550 comments were received by letter, fax, e-mail, and oral communication (public hearings) from members of the public, government and non-governmental agencies, tribes, and cooperating agencies. The comments were organized into topical categories (e.g., recreation, cultural resources, wilderness, lands and realty, wildlife, access and transportation, and interpretation). Most of the comments addressed recreation, particularly OHV use, the designation of hiking trails, and the identification of trail-use only hiking areas. Other major topics addressed by commenters included alternatives, facilities, wildlife, and transportation.

BLM assessed and considered public comments on the Draft RMP/EIS both individually and collectively. All comments submitted during the Draft RMP/EIS review period were evaluated and incorporated into the proposed plan where appropriate. Some comments led to RMP modifications; others resulted in a response to explain BLM policy, to refer readers to information in the Draft RMP/EIS, to answer technical questions and further explain technical issues, to correct reader misinterpretations, or to provide clarification. Some comments resulted in clarifications, technical corrections, and changes to the alternatives and the analysis. The comments reviewed and responses can be found in Appendix J of the PRMP/FEIS.

DEVELOPMENT OF THE PROPOSED RESOURCE MANAGEMENT PLAN

The first step in the planning process was to develop a vision for the NCA: to manage the Sloan Canyon NCA to preserve, protect, and enhance the area's cultural features and natural resources for the benefit and enjoyment of present and future generations. The scoping comments and recommendations provided by the public, tribes, cooperating agencies, and BLM resource specialists, which varied in range between retaining the natural character of the NCA and having different levels of NCA facility development and resource use, were analyzed within this framework. Alternative themes (in addition to Alternative A: No Action) therefore were named and defined to reflect the various development levels (Alternative B: Emphasize Natural Character; Alternative C: Moderate Developed Use; Alternative D: Emphasize Developed Uses). All the comments and recommendations were placed under one of the four alternative management scenarios. With the exception of recommendations that were outside the scope of the Sloan Canyon NCA Act and Clark County Act, Title II ("Wilderness Areas") and that could not be enacted for statutory or regulatory reasons, all comments and recommendations by participants during the scoping process were included in one or more of the management alternatives.

With alternative themes defined, resource specialists from BLM and the cooperating agencies developed specific objectives and actions for their area of expertise. The BLM planning team and cooperating agencies worked closely together to develop the alternatives, to carefully review the alternatives to ensure consistency within each alternative management scenario, and to identify any potential conflicts among resource prescriptions that might occur within the alternatives.

The goal of alternatives development was to construct a range of management actions and tools to balance the predicted increase in use of the NCA with protection of the NCA's outstanding characteristics, such as its primitive character and cultural resources. Alternatives had to meet the purpose and need of the NCA management plan; be viable and reasonable; provide a mix of resource protections, management use, and development; be responsive to issues identified during scoping; and meet the established planning criteria, federal laws, regulations, and BLM planning policy.

Selection of the Proposed Management Plan

The agency-preferred alternative analyzed in the Draft RMP/EIS was Alternative C, Moderate Developed Use. This alternative is the basis of the PRMP, however it was slightly modified based on internal reviews, cooperating agency collaboration, and public comments. The PRMP, used for the long-term management and protection of the NCA, was chosen from a comprehensive compilation of the alternatives. The Proposed Management Plan was selected because it serves the purpose of the NCA as described by the enacting legislation and the NCA vision as developed by the interagency planning team. It provides for moderate levels of developed recreation, facilities, and transportation, with management actions to ensure that neither resources nor visitor experiences are unacceptably degraded. Elements of each of the draft management alternatives, including Alternative B, the preferred Alternative C, and Alternative D, are included in the PRMP.

The Sloan Canyon NCA Act directed BLM to grant the City of Henderson a right-of-way (ROW) for the North McCullough Road (N-65874), which is envisioned as a scenic roadway constructed to provide access to the NCA, trailheads, and overlook points. The Act requires BLM to recommend a location for the North McCullough Road as part of this planning process. Based on ground surveys, field visits, impact assessments, and extensive dialogue with City of Henderson planners and engineers, BLM recommends the proposed Northern Corridor as the location for North McCullough Road. Any future development related to this scenic roadway-associated trail would require additional environmental review. Table ES-1, Summary of the Management Direction, summarizes the proposed plan.

CHANGES FROM THE DRAFT TO THE PROPOSED RMP/FEIS

Below is a summary of differences in management actions between the preferred alternative in the Draft RMP/EIS and the Proposed RMP/FEIS. These changes were made based on internal reviews, agency coordination, and public comments.

- The semiprimitive management emphasis area has been extended to the north on the east side of the NCA to include Black Mountain and additional critical bighorn habitat
- The PRMP has been modified to allow cross-country hiking and equestrian use in areas designated for trail use only until BLM trails are established and in use, after which some or all use may be restricted to proposed trails. Additional trails would be planned, designed, and constructed through a systematic process that would evaluate needs, potential uses, suitable destinations, and public interest, through an environmental assessment. A hiking trail system with a wide range of uses is anticipated. As in the original preferred alternative, hiking trails would not be limited to the two ROWs for hiking trails that were previously issued to the City of Henderson, as prescribed by the Sloan Canyon Act (one is included in the ROW for the North McCullough Road)
- Unauthorized constructed or social trails would be evaluated and considered for closure, restoration, or adoption into the trail system. All new disturbances within the NCA would be treated as trespasses, with appropriate administrative or law enforcement actions
- Management actions for the Petroglyph Management Area (e.g., visitor use restrictions) would be phased in as NCA infrastructure is developed and visitor numbers rise requiring increasing levels of management
- Dogs are allowed on-leash in designated areas and prohibited from the remainder of the NCA

- All campfire fuels must be packed in and out; no fuels natural to the NCA can be used. Encourage the use of potable stoves for preparing meals
- Rockhounding is prohibited in the NCA
- Casual and commercial collection of vegetation and reptiles would be prohibited throughout the NCA
- Hunting would be prohibited in the Petroglyph Management Area.

ENVIRONMENTAL CONSEQUENCES

Potential environmental impacts that could occur from implementing the proposed plan are described in Chapter 4 of this PRMP. The baseline used for determining the potential impacts are the current resource condition described in Chapter 3. The PRMP was constructed to avoid or reduce resource impacts as much as possible, so—should the management actions be implemented—the potential impacts discussed in Chapter 4 should be considered unavoidable.

AGENCY CONSULTATION AND COORDINATION

Title II, Section 202 of the FLPMA requires BLM to coordinate with certain federal, State and local agencies, Native American tribes, and other entities during the National Environmental Policy Act decision making process. BLM is also directed to integrate National Environmental Policy Act requirements with other environmental review and consultation requirements to reduce paperwork and delays (40 CFR 1500.4-5).

To comply with Section 7(c) of the Endangered Species Act of 1973, BLM consulted with the United States Fish and Wildlife Service (USFWS) to ensure the PRMP actions would neither compromise the existence of listed species nor destroy or adversely modify the critical habitat within the NCA (50 CFR 400). The USFWS referred BLM to the State of Nevada's Natural Heritage Program for verification of threatened, endangered, proposed, and candidate plant and animal species and species of concern in the NCA and for further evaluation of conservation needs for the project area (Appendix K). BLM began informal consultation with the USFWS concerning the Sloan Canyon NCA RMP/EIS in the spring 2004 and submitted a Biological Assessment based on the PRMP to the USFWS in September 2005.

The Nevada Department of Wildlife (NDOW) was consulted concerning state-listed threatened and endangered wildlife and plant species. Coordination and consultation with NDOW will continue throughout the planning process and during actual plan implementation.

The BLM cultural resource management program operates in accordance with 36 CFR, Part 60, which outlines specific procedures for consultation between BLM and the State Historic Preservation Office (SHPO). A National Programmatic Agreement among the SHPO, the Advisory Council on Historic Preservation, and BLM, which became effective in 1997, incorporated statewide protocol between BLM and SHPO, established reporting standards, and defined undertakings and activities that would require consultation. The Nevada SHPO was a cooperating agency throughout the planning process and worked with BLM to ensure that historic properties would be appropriately considered in the Sloan Canyon NCA RMP/EIS process. Consultation with the SHPO under the Nevada State Protocol and subsequent agreements will continue.

During the earliest planning stages, invitations were extended to the State of Nevada, Clark County, other agencies, and federal and local governments to participate as cooperating agencies in the RMP development. The following committed to participate as cooperating agencies: NDOW; Nevada SHPO; Clark County; City of Henderson; City of Boulder City; Las Vegas Paiute Tribe; Paiute Indian Tribe of Utah; and Fort Mojave Indian Tribe. Initially, cooperating agencies were given a field tour of the NCA; were asked by the BLM to provide existing data and other relevant information; and were encouraged to work with the BLM interdisciplinary team to develop and assess alternatives, impacts, and the proposed plan. Many cooperating agencies became integral members of the interdisciplinary team for the RMP and attended extensive meetings to share their expertise. The City of Henderson, which shares a border with the north half of the NCA, not only made expert contributions but also is taking into account the NCA and its resources in its own planning of streets, libraries, and other infrastructure in the rapidly developing lands bordering the NCA.

The NCA is known to contain a site of major interest to Native American tribes—the Sloan Canyon Petroglyph Site. Consultation with area tribes occurred and continues to occur on several levels. These consultations range from government-to-government, such as inviting interested tribes to become cooperating agencies at the level of involvement of their choice, to public information meetings held at tribal locations, and to an intensive ethnographic study undertaken with the cooperation of tribal officials and individual members to identify and evaluate the cultural resources of the NCA. BLM is committed to continuing long-term consultation and cooperation with the tribes regarding the management of cultural aspects of the NCA. A Native American Coordinator has been assigned to the NCA staff to carry forward the relationships developed during this planning process. The BLM Native American Coordinator facilitated meetings with the tribes to provide updates on the Draft RMP/EIS and to develop a comprehensive Interpretive Plan.

RESOURCE-SPECIFIC PLANS FOR THE NCA

As part of the planning process resource-specific plans and strategies were developed. These plans, some of which are required by regulations or the Sloan Canyon NCA Act, contain additional management guidance for on-the-ground activities. For example, the North McCullough Wilderness Management Plan provides direction for the management of various resources and activities within the North McCullough Wilderness to ensure the preservation of the area's wilderness character.

Recreation Monitoring Plan (Appendix B)—Contains the monitoring approach that would be used in the NCA to ensure that management actions meet the recreation management goals and objectives described in this PRMP

North McCullough Wilderness Management Plan (Appendix C)—Provides the detailed management guidance to implement actions selected as part of this PRMP for the North McCullough Wilderness over the next 10 years

Cultural Resources Management Plan (Appendix D)—Provides key elements for the management of cultural resources during the first stage of NCA implementation

Interpretive Strategy and Environmental Education Strategy (Appendix F)—Clarifies and sets direction for the Interpretive and Environmental Education Program at the NCA

Litter Cleanup Plan and Public Lands Awareness Campaign (Appendix G)—Provides cleanup actions and management priorities to help ensure that an effective anti-litter message is delivered and to eventually result in a litter-free NCA

Vegetation Restoration Strategy (Appendix H)—Developed to improve vegetation community conditions in the NCA through the restoration of existing disturbances and the management and control of future disturbances

Biological Management Strategy (Appendix I)—Contains a general management strategy to help maintain the ecological integrity and biodiversity of the NCA

Biological Assessment (Appendix L)—Addresses the biological impacts of the proposed management actions on the federally listed species identified in the PRMP and provides mitigation actions.

Table ES-1. Summary of the Management Direction

	NO ACTION	ALTERNATIVE B	PROPOSED PLAN*	ALTERNATIVE D
Alternative Themes	No Action.	Emphasize Natural Character.	Allow Moderate Developed Use While Maintaining Natural Character.	Emphasize Developed Uses.
Alternative Objectives	Manage in accordance with existing guidance, laws, plans, and policies that comply the Sloan Canyon NCA Act and Clark County Act, Title II ("Wilderness Areas").	Comply with the acts. Emphasize primitive visitor experience while protecting and preserving NCA resources. Allow least-developed use.	Comply with the acts. Provide a greater diversity of uses, developed facilities, and fewer restrictions outside the Wilderness.	Comply with the acts. Emphasize developed use, including human activities and recreational opportunities.
RECREATION OPPORTUNITY SPECTRUM/MANAGEMENT EMPHASIS AREAS				
Recreation Opportunity Spectrum/ Management Emphasis Areas (L)	Manage according to ROS classes designated in the *Las Vegas RMP*. Zone Wilderness as Primitive to meet the intent of the Sloan Canyon NCA Act and Clark County Act, Title II ("Wilderness Areas").	Manage according to designated MEAs.	Manage according to designated MEAs, except MEA zones vary (Figure 2.1).	Manage according to designated MEAs, except MEA zones vary.
RECREATION				
Hiking (I)	Allowed throughout the NCA.	Allow cross-country hiking in the NCA, except in the Sloan Canyon Petroglyph Site and its northern access, where hikers must stay in the wash. No hiking trails designated.	In designated areas, cross-country hiking allowed until BLM trails are established and constructed, after which some of the areas may be restricted to hiking on designated trails. Cross-country hiking allowed in remainder of NCA (Figure 2.2).	Trail use required in designated areas; cross-country hiking allowed in remainder of NCA, except designated areas vary.

*Underlining shows changes from Draft RMP/EIS Alternative C.

Note: (L) denotes land use planning decisions; (I) denotes implementing decisions.

Table ES-1. Summary of the Management Direction

	NO ACTION	ALTERNATIVE B	PROPOSED PLAN*	ALTERNATIVE D
Equestrian Use (I)	Allowed throughout the NCA.	Prohibited throughout the NCA, except on The City of Henderson's North McCullough Trail. Require certified weed-free feed and hay.	In designated areas, cross-country equestrian use allowed until BLM trails are established and constructed, after which some of the areas may be restricted to use on designated trails. Cross-country use allowed in other areas. Use prohibited in remainder of NCA (Figure 2.3). Require certified weed-free feed and hay. Watering of horses and pack animals prohibited at wildlife water developments. Horse and pack animal waste must be removed in trailhead areas.	Trail use required in designated areas; cross-country use allowed in other areas. Use prohibited in remainder of NCA, except designated areas vary. Require certified weed-free feed and hay.
Mountain Biking (I)	Allowed throughout the NCA, except the Wilderness.	Prohibited throughout the NCA, except on the City of Henderson's North McCullough and Anthem trails.	Allowed in designated areas on designated roads and trails (Figure 2.4).	Allowed in designated areas on designated roads and trails, except designated areas, roads, and routes vary. Dedicated mountain bike trails developed.
Trails (I)	Designate, design, construct, and maintain trails on an as-needed, case-by-case basis. Analyze development in sensitive natural or cultural	Designate no trails in the NCA other than the City of Henderson's North McCullough and Anthem trails.	Develop a multiple-use trail system in designated areas. Provide facilities to access recreational destinations and provide loop-trail opportunities.	Develop a trail system to optimize uses. Include widest range of trails and facility experiences (primitive to highly developed). Emphasize recreational

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Table ES-1. Summary of the Management Direction

	NO ACTION	ALTERNATIVE B	PROPOSED PLAN*	ALTERNATIVE D
	resource areas through site-specific National Environmental Policy Act analysis.		Avoid development in sensitive natural or cultural resource areas, where possible.	experience. Avoid development in sensitive natural or cultural resource areas, where possible.
			Consider site-specific resource conditions when selecting and designing trails and adding new trails.	Consider site-specific resource conditions when selecting and designing trails and adding new trails.
	Appropriately manage trail development near wildlife water developments.		Appropriately manage trail development near wildlife water developments.	Appropriately manage trail development near wildlife water developments.
			Evaluate trails outside Wilderness for development, with consideration of the Americans with Disabilities Act of 1990.	Evaluate trails outside Wilderness for development, with consideration of the Americans with Disabilities Act of 1990.
	Expand trial system as needed.		Add new trails if visitor experience would improve without substantial impact to sensitive natural or cultural resources.	Add new trails if visitor experience would improve without irreparable impact to sensitive natural or cultural resources.
	Restore unauthorized trails to natural conditions upon discovery.	Restore unauthorized trails to natural conditions upon discovery.	Evaluate unauthorized constructed trails and social trails and consider whether to close and restore or adopt into the trail system.	Evaluate unauthorized trails and consider whether to close and restore or adopt into the trail system.

*Underlining shows changes from Draft RMP/EIS Alternative C.

Note: (L) denotes land use planning decisions; (I) denotes implementing decisions.

Table ES-1. Summary of the Management Direction

	NO ACTION	ALTERNATIVE B	PROPOSED PLAN*	ALTERNATIVE D
OHV (L)	Per Sloan Canyon NCA Act, there is no OHV use in the NCA because no roads and routes have been designated.	Prohibited throughout the NCA.	Prohibited throughout the NCA.	Allowed on designated routes.
Dogs (I)	Allowed, off-leash, throughout the NCA unless unacceptable resource degradation occurs.	Prohibit dogs throughout the NCA.	Dogs allowed, on-leash, in designated areas (Figure 2.5) and are prohibited in the remainder of the NCA, including the Petroglyph Management Area. Dog feces must be immediately picked up and packed out.	Allowed, off-leash, throughout NCA, except in the Sloan Canyon Petroglyph Site and its northern access, and designated sensitive resource areas. Dog feces must be immediately picked up and packed out.
Nighttime Use (I)	Allow camping and associated fires throughout NCA, except areas closed to camping per the *Las Vegas RMP*.	Prohibit camping, campfires, and after-hours use throughout the NCA.	Allow primitive, dispersed camping in designated areas of the NCA (Figure 2.6). Allow campfires at camping sites in fire pans or with fire blankets. All fuels must be packed in and packed out. No natural fuels in the NCA can be used for campfires. Encourage the use of portable gas, jellied petroleum or pressurized liquid fuel stoves for cooking.	Allow primitive, dispersed camping in designated areas of the NCA, except designated areas vary. Develop a dry, primitive campground near the Hidden Valley Trailhead. Outside the Wilderness, allow campfires at camping sites in BLM-authorized fire rings. In the Wilderness, allow campfires at camping sites in fire pans or with fire blankets. Fire waste products must be packed out.

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Note: (L) denotes land use planning decisions; (I) denotes implementing decisions.

Table ES-1. Summary of the Management Direction

	NO ACTION	ALTERNATIVE B	PROPOSED PLAN*	ALTERNATIVE D
Rock Climbing (I)	Allow throughout the NCA unless unacceptable resource degradation occurs.	Prohibit throughout the NCA.	Allow bouldering and traditional rock climbing (no permanent anchors) throughout the NCA, including the Wilderness, except in the Petroglyph Management Area and its northern access, and in designated sensitive resource areas.	Allow permanent anchors throughout NCA, including the Wilderness, except in the Sloan Canyon Petroglyph Site and its northern access, and in designated sensitive resource areas. No power drills allowed in the Wilderness.
Rockhounding (L)	Allow throughout the NCA unless unacceptable resource degradation occurs.	Prohibit throughout the NCA.	Prohibit throughout the NCA.	Allow throughout NCA, except in the Sloan Canyon Petroglyph Site and its northern access.
Geocaching (I)	Allow throughout the NCA unless unacceptable resource degradation occurs.	Prohibit throughout the NCA.	Prohibit throughout the NCA.	Prohibit throughout the NCA.
Recreational Target Shooting (I)	Allow throughout NCA except areas closed to shooting per the *Las Vegas RMP*.	Prohibit throughout the NCA.	Prohibit throughout the NCA.	Prohibit throughout the NCA.
Hunting			Allowing hunting, in accordance with State of Nevada laws and regulations, throughout the NCA except for the Petroglyph Management Area. Allow hunting dogs, off-leash, in designated hunting areas.	
Special Recreation Permits (SRPs) (L)	Issue SRPs in the NCA; issue no competitive or vending SRPs in the Wilderness.	Issue no competitive or vending SRPs within the NCA or Wilderness.	Issue SRPs in the NCA; issue no competitive or vending SRPs in the Wilderness. <u>Issue commercial SRPs on a case-by-case basis for guides and outfitters.</u>	Issue SRPs in the NCA; issue no competitive or vending SRPs the Wilderness.

*Underlining shows changes from Draft RMP/EIS Alternative C.

Note: (L) denotes land use planning decisions; (I) denotes implementing decisions.

Table ES-1. Summary of the Management Direction

	NO ACTION	ALTERNATIVE B	PROPOSED PLAN*	ALTERNATIVE D
	Require organized groups to obtain an SRP on a case-by-case basis.	Require organized groups to obtain an SRP on a case-by-case basis for group activities outside the Sloan Canyon Petroglyph Site.	Require organized groups to obtain an SRP on a case-by-case basis for group activities outside the Petroglyph Management Area.	Require organized groups to obtain an SRP on a case-by-case basis for group activities outside the Sloan Canyon Petroglyph Site.
NORTH MCCULLOUGH WILDERNESS AREA (See Appendix C, Wilderness Management Plan, for additional implementing actions)				
Wilderness Visitation (I)	Monitor and manage to maintain wilderness characteristics (e.g., solitude and naturalness).	Monitor and manage to maintain wilderness characteristics (e.g., solitude and naturalness) at or below a threshold established through a system such as limit of acceptable change process. Establish separate threshold for the Sloan Canyon Petroglyph Site. Limit visitation to a number that does not cause impacts to wilderness characteristics (e.g., social trails and crowding). Establish appropriate visitation thresholds based on monitoring of impacts to wilderness characteristics.	Monitor and manage to maintain wilderness characteristics (e.g., solitude and naturalness) at or below the visitor encounter standards/thresholds as established in the North McCullough Wilderness Management Plan (Appendix C). Based on monitoring and refined baseline data, adjust the thresholds and or limitations through a system such as limits of acceptable change (LAC). Establish separate thresholds and/or limitations for the Petroglyph Management Area and the remainder of the Wilderness.	Monitor and manage to maintain wilderness characteristics (e.g., solitude and naturalness) at or below a threshold established through a system such as limit of acceptable change process. Establish separate threshold for the Sloan Canyon Petroglyph Site. Limit visitation to a number that does not cause impacts to wilderness characteristics (e.g., social trails and crowding). Establish appropriate visitation thresholds based on monitoring of impacts to wilderness characteristics.
Sloan Canyon Petroglyph Management Area	Allow self-guided tours without restrictions on visitation numbers, group size, or access.	Allow visitation to the Sloan Canyon Petroglyph Site only with a guided tour.	Management actions for the Petroglyph Management Area would be implemented once adequate NCA	Allow self-guided tours without restrictions on visitation numbers, group size, or access.

*Underlining shows changes from Draft RMP/EIS Alternative C.

Note: (L) denotes land use planning decisions; (I) denotes implementing decisions.

Table ES-1. Summary of the Management Direction

	NO ACTION	ALTERNATIVE B	PROPOSED PLAN*	ALTERNATIVE D
Visitor Use Restrictions (I)			<u>infrastructure is in place.</u> During periods of lower use, allow unaccompanied visitation to the Petroglyph Management Area if permit is obtained.	
		Allow no more than one guided group, consisting of no more than 12 people, at the petroglyph site at one time.	During periods of high use, allow no more than one guided group, consisting of no more than 20 people, at the petroglyph site at one time.	Establish no limitation on group sizes or numbers unless needed to prevent impacts to wilderness characteristics or canyon resources.
		For organized groups with prior reservations, guided tours would be arranged for groups of 6 to 20 people to visit the Sloan Canyon Petroglyph Site.	For organized groups with prior reservations, guided tours would be arranged for groups of 10 to 35 people to visit the Sloan Canyon Petroglyph Site.	For organized groups with prior reservations, guided tours would be arranged for groups of 10 to 35 people to visit the Sloan Canyon Petroglyph Site.
Sloan Canyon <u>Petroglyph Management Area</u> **Self-Guided Tours (I)**	No similar action.	Prohibit unaccompanied visits.	Issue self-guided tour permits from the visitor center, from a roving ranger, or at the Hidden Valley Trailhead. Issue no more than 25 permits per hour. Require all nonguided visitors to experience an interpretive presentation on appropriate visitor use and site etiquette at cultural resources sites.	No permits required. Require all nonguided visitors to experience an interpretive presentation on appropriate visitor use and site etiquette at cultural resources sites.

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Table ES-1. Summary of the Management Direction

	NO ACTION	ALTERNATIVE B	PROPOSED PLAN*	ALTERNATIVE D
Sloan Canyon Petroglyph Management Area **Operational Hours (I)**	No similar action.	Allow access to petroglyph site during visitor contact station operating hours (to be determined).	Allow access to Petroglyph Management Area during visitor center operating hours (to be determined).	Allow access to petroglyph site during visitor center and visitor contact station operating hours (to be determined).
Sloan Canyon Petroglyph Management Area **Access Control/Patrols (I)**	Patrol to protect natural and cultural resources and to ensure compliance with the Sloan Canyon NCA Act.	Control northern access to the Sloan Canyon Petroglyph Site from the visitor contact station and ongoing patrols. Monitor resource conditions and visitor use of the canyon with roving rangers.	Control northern access to the Petroglyph Management Area from the visitor's center by site patrols. Control southern access to the Petroglyph Management Area by issuing permits at the Hidden Valley Trailhead and by site patrols. Utilize roving rangers to monitor resource conditions and visitor use, as well as issue self-guided tour permits.	Control northern access to the Sloan Canyon Petroglyph Site from the visitor's center and ongoing patrols. Control southern access to the Sloan Canyon Petroglyph Site from Hidden Valley contact station. Monitor resource conditions and visitor use of the canyon with roving rangers.
Sloan Canyon Petroglyph Management Area **Trails (L)**	Manage to comply with the Sloan Canyon NCA Act and Clark County Act, Title II ("Wilderness Areas").	Designate the Sloan Canyon wash as the access from the contact station to the petroglyph site. Use limited to the canyon floor.	Designate and construct two trails as the North access options from the visitor center to the Sloan Canyon Petroglyph Site. (Cowboy Trail and Petroglyph Trail) Designate and construct a trail from the Hidden Valley Trailhead to the Petroglyph Management Area (Figure 2.7).	Designate both the Sloan Canyon wash and the constructed rockfall bypass trail as the access options from the visitor center to the petroglyph site, except place ladder or rock stairway in wash at rockfall.

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Table ES-1. Summary of the Management Direction

	NO ACTION	ALTERNATIVE B	PROPOSED PLAN*	ALTERNATIVE D
			Limit the uses within the Petroglyph Management Area to the canyon floor and designated trail access (Figure 2.8).	
Sloan Canyon Petroglyph Management Area **Signage (I)**	No similar action.	Prohibit within the Sloan Canyon Petroglyph Site access areas. Place signs indicating that access to the Sloan Canyon Petroglyph Site is allowed by guided tour only beyond this point. Place signs at various points, including the south end of the Sloan Canyon Petroglyph Site.	Allow limited amounts of signage and interpretive media within the Petroglyph Management Area for resource and wilderness protection.	Allow signage and interpretive media within the Sloan Canyon Petroglyph Site and access areas for educational purposes and to protect wilderness values. No similar action.
Wilderness Recreation **Hiking/ Equestrian Use (I)**	No similar action.	Allow cross-country hiking in the Wilderness, except in the Sloan Canyon Petroglyph Site and its northern access. Prohibit equestrian use in the Wilderness.	Require use of designated trails in the Petroglyph Management Area. In the remainder of Wilderness allow cross-country hiking. Prohibit equestrian and pack animal use in the Petroglyph Management Area. In the remainder of the Wilderness allow cross-country equestrian and pack animal use.	Designated trail use required to access the Sloan Canyon Petroglyph Site; cross-country hiking allowed in remainder of Wilderness. Equestrian use prohibited in the Sloan Canyon Petroglyph Site; allow cross-country equestrian use in the remainder of the Wilderness, except trail use required for equestrian use in designated areas in the NCA and Wilderness.

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Table ES-1. Summary of the Management Direction

	NO ACTION	ALTERNATIVE B	PROPOSED PLAN*	ALTERNATIVE D
			Use of certified weed-free horse feed and hay would be required through out the Wilderness.	Certified weed-free horse feed and hay would be required to prevent the spread of noxious and invasive weeds.
Wilderness Recreation **Trails (L)**	Manage trail use as appropriate and designate trails on a case-by-case basis. Design construct, and maintain trails as appropriate. Manage social trail proliferation as appropriate. Manage trail development near wildlife water developments as appropriate.	Prohibit designation and construction of hiking and equestrian trails. Block new social trails using natural materials, with the minimum requirement/ minimum tool analysis. Restore visible portions of new social trails using nonmechanized means and native vegetation.Restore nonvisible portions naturally. Manage recreation use that results in social trails by closing areas, installing barriers, and providing visitor information.	As necessary, construct, designate, and maintain trails for the protection of resources and wilderness character. Evaluate social trails and consider whether to close and restore or adopt into the trail system. Manage recreation use that results in social trails by closing areas, installing barriers, and providing visitor information. Prohibit construction of trails within 1/4-mile of wildlife developments.	Designate, design, construct, and maintain trails for resource protection and opportunities for primitive recreation. Block new social trails using natural materials, with the minimum requirement/ minimum tool analysis, and install wilderness-appropriate “Closed” signs. Restore new social trails after completing a minimum requirement/minimum tool analysis. Manage recreation use that results in social trails by closing areas, installing barriers, and providing visitor information. Prohibit construction of trails within 1/4-mile of wildlife developments.

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Table ES-1. Summary of the Management Direction

	NO ACTION	ALTERNATIVE B	PROPOSED PLAN*	ALTERNATIVE D
Wilderness Recreation **Dogs (I)**	Allow, off-leash, throughout Wilderness unless unacceptable resource degradation occurs.	Prohibit dogs throughout Wilderness.	Prohibit dogs throughout Wilderness.	Allow, off-leash, throughout Wilderness except in the Sloan Canyon Petroglyph Site and its northern access, and designated sensitive resource areas. Dog feces must be immediately picked up and packed out.
Wilderness Recreation **Nighttime Use (I)**	Allow camping and associated campfires throughout the Wilderness, except in areas closed to camping per the *Las Vegas RMP.*	Prohibit camping, campfires, and after-hours use throughout the Wilderness.	Allow primitive, dispersed camping and associated campfires throughout the Wilderness, except in the Petroglyph Management Area. Allow campfires at camping sites using only fire pans or fire blankets. All fuels must be packed in and packed out. No natural fuels in the NCA can be used for campfires. Fire waste products must be packed out. Encourage the use of portable gas, jellied petroleum or pressurized liquid fuel stoves for cooking.	Allow primitive, dispersed camping and associated campfires throughout the Wilderness, except in the Sloan Canyon Petroglyph Site. Allow campfires at camping sites, using fire pans or fire blankets. Fire waste products must be packed out.
Wilderness Recreation **Other Recreation Use (I)**	Allow geocaching throughout Wilderness unless unacceptable resource degradation occurs.	Prohibit geocaching in the Wilderness.	Prohibit geocaching in the Wilderness.	Prohibit geocaching in the Wilderness.

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Table ES-1. Summary of the Management Direction

	NO ACTION	ALTERNATIVE B	PROPOSED PLAN*	ALTERNATIVE D
	Allow rock climbing with permanent anchors (but no power drills).	Prohibit rock climbing in the Wilderness.	Prohibit rock climbing in the Petroglyph Management Area and its northern access. Allow bouldering and traditional rock climbing (no permanent anchors) in the remainder of the Wilderness.	Prohibit rock climbing in the Sloan Canyon Petroglyph Site and its northern access. Allow bouldering and traditional rock climbing using low-profile, natural-colored fixed anchors (no power drills) in the remainder of the Wilderness.
***Wilderness* Signage and Developments (I)**	Install Wilderness boundary signs, trailhead access signs, visitor registers, and permanent improvements, as appropriate. Allow permanent improvements in Wilderness, as appropriate.	Install Wilderness boundary signs at all known and potential Wilderness access routes and visitor use areas. Install low–profile, natural-colored Wilderness visitor registers outside the Wilderness boundary on high-use access routes. Prohibit permanent improvements in Wilderness.	Wilderness boundary would be posted at all known and potential access routes, visitor use areas, and at "line of sight" distances along its entire length. Interpretive and administrative signs, visitor registers, and kiosks would be located outside the Wilderness boundary at appropriate access routes. Include route information, maps, and visitor information. Allow minimal permanent developments only for the purpose of resource	Install wilderness boundary signs at all known and potential Wilderness access routes and visitor use areas, except install signs at "line of sight" distances along the entire Wilderness boundary. Install low-profile, natural-colored trailhead signs and kiosks outside Wilderness boundary at major access routes. Include route information, maps, and visitor and interpretative information. Install low–profile, natural-colored Wilderness visitor registers outside the Wilderness boundary on high-use access routes. Allow minimal permanent improvements in Wilderness only for the purpose of

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	NO ACTION	ALTERNATIVE B	PROPOSED PLAN*	ALTERNATIVE D
			protection and enhancement of wilderness values.	resource protection, human health and safety, and enhancement of wilderness values.
Wilderness Disturbance Restoration (I)	Maintain naturalness.	Restore human-caused disturbances or alterations using only nonmechanized handtools, without altering natural vegetation composition. Complete restoration during low visitation periods.	Rehabilitate human-caused disturbances or developments using appropriate methods determined through a minimum requirement/ minimum tool analysis for each project.	Restore human-caused disturbances or alterations using only nonmechanized handtools, without altering natural vegetation composition. Complete restoration during low visitation periods, except complete a minimum requirement/minimum tool analysis.
	Manage vandalism and illegal dumping as appropriate.	Remove or repair vandalism and illegal dumping in the Sloan Canyon Petroglyph Site using only nonmechanized handtools. In the remainder of the Wilderness, consider using nonmechanical means.	Remove or repair vandalism and illegal dumping in the Wilderness <u>after completing a minimum requirement/ minimum tool analysis.</u>	Remove or repair vandalism and illegal dumping in the Wilderness using only nonmechanized hand tools.
	Noxious and invasive weeds would be managed as appropriate on a case-by-case basis.	Manage noxious and invasive weeds in accordance with Partners Against Weeds—An Action Plan for the BLM Initiative for Weeds.	Manage noxious and invasive weeds in accordance with Partners Against Weeds—An Action Plan for the BLM Initiative for Weeds.	Manage noxious and invasive weeds in accordance with Partners Against Weeds—An Action Plan for the BLM initiative for weeds.
CULTURAL RESOURCES				
Sloan Canyon Petroglyph National	Manage under Section 106 and appropriate guidance when threatened by land	Assign to traditional use, conservation for future use, and public use categories	Assign to traditional use, conservation for future use, public use, and scientific use	Assign to traditional use, conservation for future use, public use, and scientific use

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	NO ACTION	ALTERNATIVE B	PROPOSED PLAN*	ALTERNATIVE D
Register Site (L)	disturbing activities within limits prescribed by compliance with the Sloan Canyon NCA Act and Clark County Act, Title II ("Wilderness Areas"). Implement the *Las Vegas RMP*, managing cultural resources within the Sloan Canyon Petroglyph NRHP Site for conservation of their overriding scientific or historic importance.	within the limits prescribed by the Sloan Canyon NCA Act and Clark County Act, Title II ("Wilderness Areas"). Minimize changes to natural condition of the site.	categories. Management actions must be within limits prescribed by the Sloan Canyon NCA Act and Clark County Act, Title II ("Wilderness Areas").	categories, with scientific use restricted to activities that would have no effect on the site's eligibility for the NRHP. Management actions must be within limits prescribed by the Sloan Canyon NCA Act and Clark County Act, Title II ("Wilderness Areas").
Rockshelters (L)	Manage under Section 106 and appropriate guidance when threatened by land disturbing activities. Implement the *Las Vegas RMP*, managing rockshelters that have or are likely to receive intensive recreational use for public use. Monitor and protect these sites as appropriate. Manage rockshelters in the remainder of the NCA for conservation use.	Assign the majority of known rockshelters to conservation for future use and traditional use management categories. Assign the remainder of the rockshelters to scientific, public, and traditional use categories.	Assign approximately half the known rockshelters to conservation for future use and traditional use management categories. Assign the remainder of the rockshelters to scientific, public, and traditional use categories.	Assign the majority of known rockshelters to scientific and traditional use management categories. Assign the remainder of the rockshelters to conservation for future use and traditional use categories.

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	NO ACTION	ALTERNATIVE B	PROPOSED PLAN*	ALTERNATIVE D
Rock Art (other than Sloan Canyon Petroglyph Site) (L)	Manage under Section 106 and appropriate guidance when threatened by land disturbing activities. Implement the *Las Vegas RMP*, managing rock art locales that have or are likely to receive intensive recreational use for public use. Monitor and protect from disturbance and damage as appropriate. Manage rock art locale in the remainder of the NCA for conservation use.	Assign the majority of rock art sites to conservation for future use and traditional use management categories. Assign the remainder of the rock art sites to conservation for future use, scientific use, and traditional use categories.	Assign approximately half the rock art sites to conservation for future use and traditional use management categories. Assign the remainder of the rock art sites to conservation for future use, scientific use, and traditional use categories.	Assign the majority of rock art sites to traditional and public use management categories. Assign the remainder of rock art sites to conservation for future use, scientific use, and traditional use categories.
All Other Prehistoric and Historic Sites (L)	Manage under Section 106 and appropriate guidance when threatened by land disturbing activities. Implement the *Las Vegas RMP*, managing roasting pits, camp/open lithic scatters, rock features, and historic trash scatters for scientific use. Manage representative samples of each site type for conservation use. Manage prehistoric and historic remains, mining sites, and historic road/trail sites in areas that have or	Assign approximately half the known other prehistoric and historic sites to conservation for future use and traditional use. Assign the remainder of these sites to scientific, public, and traditional use management categories.	Assign approximately half the known other prehistoric and historic sites to conservation for future use and traditional use. Assign the remainder of these sites to scientific, public, and traditional use management categories.	Assign the majority of the known other prehistoric and historic sites to scientific and traditional use management categories. Assign the remainder of these sites to conservation for future use and traditional use categories.

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	NO ACTION	ALTERNATIVE B	PROPOSED PLAN*	ALTERNATIVE D
	are likely to receive intensive recreational use for public use. Monitor and protect these sites as appropriate. Manage the remainder of these sites within the NCA for conservation use.			
Ineligible Sites and Isolates (L)	Not treated under the *Las Vegas RMP* or Section 106.	Assign to scientific and experimental use management categories. Do not require mitigation beyond recordation for land disturbing activities, because not covered under Section 106.	Assign to scientific and experimental use management categories.	Assign to scientific and experimental use management categories.
High-Density Site Area (L)	Manage under Section 106 and appropriate guidance when threatened by land disturbing activities.	Require Class III inventory prior to any land disturbing undertaking. Require mitigation measures appropriate to the resource, degree of threat, and redundancy of information. Utilize maximum fire suppression with cultural resource advisor.	Require Class III inventory prior to any land disturbing undertaking. Require mitigation measures appropriate to the resource, degree of threat, and redundancy of information. Utilize maximum fire suppression with cultural resource advisor.	Require Class III inventory prior to any land disturbing undertaking. Require mitigation measures appropriate to the resource, degree of threat, and redundancy of information. Utilize maximum fire suppression with cultural resource advisor.
Medium-Density Site Area (L)	Manage under Section 106 and appropriate guidance when threatened by land disturbing activities.	Require Class III inventory prior to any land disturbing undertaking. Require mitigation measures appropriate to the resource, degree of threat, and redundancy of information.	Require Class III inventory prior to any land disturbing undertaking. Require mitigation measures appropriate to the resource, degree of threat, and redundancy of information.	Require Class III inventory prior to any land disturbing undertaking. Require mitigation measures appropriate to the resource, degree of threat, and redundancy of information.

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	NO ACTION	ALTERNATIVE B	PROPOSED PLAN*	ALTERNATIVE D
		Utilize flexible fire suppression with cultural resource advisor.	Utilize flexible fire suppression with cultural resource advisor.	Utilize flexible fire suppression with cultural resource advisor.
Low-Density Site Area (L)	Manage under Section 106 and appropriate guidance when threatened by land disturbing activities.	Require reconnaissance-level inventory prior to land disturbing activities. Consider areas for elimination of inventory requirements when sufficient information is available. Require mitigation measures appropriate to the resource, degree of threat, and redundancy of information. Fire control would be discretionary, with no resource advisor required.	Require reconnaissance-level inventory prior to land disturbing activities. Consider areas for elimination of inventory requirements when sufficient information is available. Require mitigation measures appropriate to the resource, degree of threat, and redundancy of information. Fire control would be discretionary, with no resource advisor required.	Require reconnaissance-level inventory prior to land disturbing activities. Consider areas for elimination of inventory requirements when sufficient information is available. Require mitigation measures appropriate to the resource, degree of threat, and redundancy of information. Fire control would be discretionary, with no resource advisor required.
SPECIAL DESIGNATION—ACEC				
Modification/ Elimination of Sloan Rock Art District ACEC (L)	Maintain existing area of environmental concern (ACEC).	Modify the ACEC boundary to match the Sloan Canyon Petroglyph Site boundary as listed in the National Register of Historic Places.	Eliminate the ACEC.	Eliminate the ACEC.
VISUAL RESOURCES				
Establish VRM Classes (L)	Apply VRM classes established in the *Las Vegas RMP*, except the Wilderness would be VRM Class I.	VRM classes would be established based on the Visual Resource Inventory, including designating the Wilderness as VRM Class I.	VRM classes would be established based on the Visual Resource Inventory, including designating the Wilderness as VRM Class I (Figure 2.9).	VRM classes would be established based on the Visual Resource Inventory, including designating the Wilderness as VRM Class I, except class areas vary.

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	NO ACTION	ALTERNATIVE B	PROPOSED PLAN*	ALTERNATIVE D
INTERPRETATION				
Whether Interpretive and Informational Material will be Visible to Users (I)	No similar action.	Minimize presence of interpretive media. Visible media would be low-profile, natural in color, and used to orient visitors while providing resource protection. Place stationary interpretive media (kiosks, bulletin boards) in highly developed areas. Produce other interpretive media to accompany visitors into the NCA. Focus on use of interactive virtual interpretation media.	Outside the Wilderness, allow low-profile, visually unobtrusive interpretive media in high-use areas. Focus on highly visible media at staging areas (parking areas, trailheads). Inside the Wilderness, allow limited amounts of small signage and interpretive media in high-use areas for the purposes of resource protection and the enhancement of wilderness values. Limit stationary interpretive media to specific areas identified for interpretation, and design to reduce visual impacts. Provide a full range of interpretive media, with visibility decreasing as the distance from developed areas increases. Focus on use of interactive virtual interpretation media.	Outside the Wilderness, provide visible interpretive media designed to draw attention to interpreted resources (where appropriate). Locate media to best interpret the resources. Provide a full range of interpretive media pending other resource considerations.

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	NO ACTION	ALTERNATIVE B	PROPOSED PLAN*	ALTERNATIVE D
FACILITIES				
NCA Facilities (L)	No similar action.	Construct a visitor contact station near the NCA boundary at the north entrance to Sloan Canyon. Provide interpretative material to assist in resource protection, assist NCA personnel, and serve as an access point to the Sloan Canyon Petroglyph Site. Locate a separate facility near the contact station to support maintenance and other administrative purposes. Construct a Hidden Valley Trailhead consisting of a surfaced parking lot, an interpretive kiosk, and vault toilet at the NCA boundary.	Construct a visitor center near the NCA boundary at the north entrance to Sloan Canyon. The center could provide NCA office space, serve as an access and control point for the Petroglyph Management Area, and be the headquarters for patrols and rangers. The center could include space for visiting scholars, <u>archival storage</u>, maintenance and storage, interpretive areas, amphitheater, classrooms, bookstore, and concessions. Construct a Hidden Valley Trailhead consisting of a <u>surfaced</u> parking lot, an interpretive kiosk, and vault toilet at the NCA boundary.	Construct a visitor center near the NCA boundary at the north entrance to Sloan Canyon. The center could provide NCA office space, serve as an access and control point for the Sloan Canyon Petroglyph Site, and be the headquarters for patrols and rangers. The center could include space for visiting scholars, maintenance and storage, interpretive areas, amphitheater, classrooms, bookstore, and concessions. Construct a Hidden Valley Trailhead consisting of a surfaced parking lot and an equestrian staging area in the NCA at the Wilderness boundary, near the south entrance to Sloan Canyon. A visitor contact station would be constructed at the Hidden Valley Trailhead and would comprise interpretive kiosks, vault toilets, and a nearby 1-acre 20-site dry campground.

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	NO ACTION	ALTERNATIVE B	PROPOSED PLAN*	ALTERNATIVE D
		Construct a Dutchman Pass Trailhead consisting of a surfaced parking lot, an interpretive kiosk, and vault toilet constructed near the northeastern boundary of the NCA.	Construct a Dutchman Pass Trailhead consisting of a <u>surfaced</u> parking lot, an equestrian staging area. an interpretive kiosk, and vault toilet constructed near the northeastern boundary of the NCA. Construct a Quo Vadis Trailhead consisting of a 1/2-acre <u>surfaced</u> parking lot, with an interpretive kiosk and vault toilet (Figure 2.10).	Construct a Dutchman Pass Trailhead consisting of a hardened surfaced parking lot, an equestrian staging area, an interpretive kiosk, and bathrooms with water and power. Construct a Quo Vadis Trailhead consisting of a surfaced or paved parking lot large enough to accommodate vehicles pulling OHVs or horse trailers. The trailhead would have a gravel equestrian staging area, an interpretive kiosk, and vault toilet. Construct a Sutor Hills Trailhead consisting of a surfaced parking, with an interpretive kiosk and vault toilet.
Offsite NCA Information (L)	No similar action.	Provide NCA information at offsite locations throughout the City of Henderson (e.g., schools and libraries).	Provide NCA information at offsite locations throughout the City of Henderson (e.g., schools and libraries).	Provide NCA information at offsite locations throughout the City of Henderson, Las Vegas, and Boulder City (e.g., schools and libraries).

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	NO ACTION	ALTERNATIVE B	PROPOSED PLAN*	ALTERNATIVE D
LANDS AND REALTY				
Consideration of New Linear and Site-Type ROWs (L)	Consider applications of new ROWs or any amendments to existing ROWs on a case-by-case basis within the NCA, under FLPMA, if the action furthers the purpose of the NCA in Section 602 of the Sloan Canyon NCA Act.	Consider applications of new ROWs or any amendments to existing ROWs on a case-by-case basis within the NCA, if the action furthers the purpose of the NCA in Section 602 of the Sloan Canyon NCA Act. Evaluation criteria could include, in part— Direct benefit to the NCA, such as utilities to serve NCA facilities. Maintaining or decreasing visual contrast. Reduction of disturbed area. Improvement in road/ROW alignment.	Consider applications of new ROWs or any amendments to existing ROWs on a case-by-case basis within the NCA (Figure 2.11), if the action furthers the purpose of the NCA in Section 602 of the Sloan Canyon NCA Act. Evaluation criteria could include, in part— Direct benefit to the NCA, such as utilities to serve NCA facilities or maintaining or decreasing visual contrast. Reduction of disturbed area. Improvement in road/ROW alignment.	Consider applications of new ROWs or any amendments to existing ROWs on a case-by-case basis within the NCA, if the action furthers the purpose of the NCA in Section 602 of the Sloan Canyon NCA Act. Evaluation criteria could include, in part— Direct benefit to the NCA, such as utilities to serve NCA facilities. Maintaining or decreasing visual contrast. Reduction of disturbed area. Improvement in road/ROW alignment.
Commercial Film Permit (I)	Authorize commercial film permits after adequate National Environmental Policy Act analysis.	Issue no commercial film permits within the NCA.	Issue no commercial film permits within the Wilderness. Limit film permits to designated trails and trailheads. Vehicles associated with the permit may not occupy more than 50% of the parking area capacity. Filming would be prohibited on weekends and	Issue no commercial film permits within the Wilderness. Limit film permits to designated trails and trailheads. Vehicles associated with the permit may not occupy more than 50% of the parking area capacity. Filming would be prohibited on weekends and

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			federal holidays. No new disturbance allowed. Maximum crew size per permit of 15 people for still and motion photography.	federal holidays. No new disturbance allowed. Maximum crew size per permit of 25 people for still photography and 50 people for motion photography.
TRANSPORTATION (Licensed Motorized Vehicles)				
Road Designations (L)	No roads or routes designated for public licensed vehicle use—all roads closed.	The North McCullough Road, when constructed, would be open for licensed vehicles. Close all other roads and routes to registered vehicle use.	Designate the North McCullough Road, Dutchman Pass Road, Quo Vadis Mine Road, and Rattlesnake Canyon Road Open for public use by registered vehicles. Close all other roads and routes to registered vehicle use (Figure 2.12).	Designate the North McCullough Road, Dutchman Pass Road, Quo Vadis Mine Road, Rattlesnake Canyon Road, East-West Power Line Road (Serial Number 33006), and Sutor Hills Road Open for public use by licensed vehicles. Close all other roads and routes to registered vehicle use.
VEGETATION MANAGEMENT (including Special Status Species)				
Treatment Actions for Disturbed Areas (L)	Rehabilitated, reclaimed, or revegetated areas subjected to surface disturbing activities where feasible. When rehabilitating, manage for optimum species diversity by seeding with native species, as appropriate.	Managed vegetation on all applicable MEA zones to promote native plant communities and restore the plant productivity of disturbed areas. Restore disturbed areas in the Wilderness through natural processes.	Managed vegetation on all applicable MEA zones to promote native plant communities and restore the plant productivity of disturbed areas. Restore disturbed areas in the Wilderness after completion of minimum requirement/minimum tool	Managed vegetation on all applicable MEA zones to promote native plant communities and restore the plant productivity of disturbed areas. Restore disturbed areas in the Wilderness after completion of minimum requirement/ minimum tool analysis.

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	NO ACTION	ALTERNATIVE B	PROPOSED PLAN*	ALTERNATIVE D
			analysis.	
		Landscape developed areas using only plant species native to the NCA.	Landscape developed areas using only plant species native to the NCA.	Landscape developed areas using only plant species native to the NCA.
Management of Activities that Impact Vegetation (I)	No similar action.	Improve or restore to natural conditions any surface disturbance that adversely affects native plant communities. Manage disturbance threshold before restoring natural condition or improving the condition of native plant communities by MEA zone.	Minimize impacts to native plant communities adversely affected by surface disturbance. Manage disturbance threshold before restoring natural condition or improving the condition of native plant communities by MEA zone (Figure 2.13).	Minimize impacts to native plant communities adversely affected by surface disturbance. Manage disturbance threshold before restoring natural condition or improving the condition of native plant communities by MEA zone, except MEA zones vary.
Priority for Restoration Projects (L)	No similar action.	Priority for restoring and improving conditions of native plant communities is Restoration Zone 3.	Priority for restoring and improving conditions of native plant communities is Restoration Zones 1 and 2.	Priority for restoring and improving conditions of native plant communities is Restoration Zone 1.
Collection of Vegetation (Seeds and/or Live Plants) (I)	Allow casual collection throughout the NCA, and commercial collection outside the Wilderness.	Prohibit casual and commercial collection throughout the NCA.	Prohibit casual and commercial collection throughout the NCA.	Allow casual collection outside the Wilderness to further the objectives of the NCA; allow commercial collection outside the Wilderness.
Special Status and Sensitive Species Management (L)	Manage Special Status Species for full regulatory compliance.	Maintain and protect Sensitive and Special Status Species habitats to ensure suitable conditions and population viability. Encourage scientific research and monitoring of Special Status Species.	Maintain and protect Sensitive and Special Status Species habitats to ensure suitable conditions and population viability. Encourage scientific research and monitoring of Special Status Species.	Maintain and protect Sensitive and Special Status Species habitats to ensure suitable conditions and population viability. Encourage scientific research and monitoring of Special Status Species.

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Table ES-1. Summary of the Management Direction

	NO ACTION	ALTERNATIVE B	PROPOSED PLAN*	ALTERNATIVE D
		Develop partnerships with universities and other educational groups to facilitate research on and monitoring of Special Status Species.	Encourage partnerships with universities and other educational groups to facilitate research on and monitoring of Special Status Species.	Develop partnerships with universities and other educational groups to facilitate research on and monitoring of Special Status Species.
Potential Threats to Sensitive or Special Status Species from Surface Disturbance (I)	Evaluate proposed disturbance areas for the presence of Special Status Plant Species.	Evaluate proposed disturbance areas for the presence of Special Status Plant Species, except avoid surface disturbing activities within Sensitive or Special Status and federally listed species habitat, if feasible.	Evaluate proposed disturbance areas for the presence of Special Status Plant Species, except avoid surface disturbing activities within known locations of federally listed plant species, if feasible.	Evaluate proposed disturbance areas for the presence of Special Status Plant Species, except avoid surface disturbing activities within known locations of federally listed plant species, if feasible.
WILDLIFE MANAGEMENT (including Special Status Species)				
Bighorn Sheep Habitat Management (I)	Manage in accordance with the current NDOW MOU and for full regulatory compliance.	Manage in accordance with the current NDOW MOU and for full regulatory compliance, and in addition— Visitors would be educated to be sensitive to bighorn sheep lambing areas from January to May.	Manage in accordance with the current NDOW MOU and for full regulatory compliance, and in addition— Visitors would be educated to be sensitive to bighorn sheep lambing areas from January to May. Limit designation and construction of trails, facilities, and ROWs within known lambing areas. Limit surface disturbing activities within known lambing areas from January	Manage in accordance with the current NDOW MOU and for full regulatory compliance, and in addition— No restrictions on visitor use or areas accessed.

*Underlining shows changes from Draft RMP/EIS Alternative C.

Note: (L) denotes land use planning decisions; (I) denotes implementing decisions.

Table ES-1. Summary of the Management Direction

	NO ACTION	ALTERNATIVE B	PROPOSED PLAN*	ALTERNATIVE D
			through May. Avoid trail construction in areas of known bighorn sheep movement between the North and South McCullough Mountains.	
Reptile Habitat Management (I)	Allow casual collection of reptiles throughout the NCA, but commercial collection allowed only outside the Wilderness.	Prohibit casual and commercial collection of reptiles throughout the NCA.	Prohibit casual and commercial collection of reptiles throughout the NCA.	Allow casual collection of reptiles throughout the NCA, outside the Wilderness, except— Prohibit any surface disturbing activity related to casual or commercial collection. Allow commercial collection outside the Wilderness.
Raptor Management (I)	Manage potential nesting areas for full regulatory compliance.	Manage potential nesting areas for full regulatory compliance, and in addition— Visitors would be educated to be sensitive to raptor nesting areas in April and May.	Manage potential nesting areas for full regulatory compliance, and in addition— Visitors would be educated to be sensitive to raptor nesting areas during nesting season. Avoid designation and construction of trails, facilities, or ROWs within known nesting areas. Construction of trails, facilities, or ROWs would be seasonally restricted within a radius of occupied raptor nesting sites.	Manage potential nesting areas for full regulatory compliance, and in addition— No restrictions on visitor use or areas accessed.

*Underlining shows changes from Draft RMP/EIS Alternative C.

Note: (L) denotes land use planning decisions; (I) denotes implementing decisions.

Table ES-1. Summary of the Management Direction

	NO ACTION	ALTERNATIVE B	PROPOSED PLAN*	ALTERNATIVE D
			Distance and seasonal restriction could be determined on a case-by-case basis and would depend on the species involved, natural topographic barriers, and line-of-sight distances.	
Scientific Research (I)	Issue wildlife specimen collection permits on a case-by-case basis.	Do not issue wildlife specimen collection permits. Allow wildlife observation studies as long as the study does not harass species. Implement surveys for appropriate species.	Issue wildlife specimen collection permits for scientific purposes on a case-by-case basis. Require all applicants who intend to collect specimens of listed species to obtain permits from NDOW and USFWS. Allow wildlife observation studies as long as the study does not harass species. Implement surveys for appropriate species.	Issue wildlife specimen collection permits for scientific purposes on a case-by-case basis. Require all applicants who intend to collect specimens of listed species to obtain permits from NDOW and USFWS. Allow wildlife observation studies as long as the study does not harass species. Implement surveys for appropriate species.
Area/Trail Closures (L)	No similar action.	Permanently close trails or areas or restrict activities when closures would protect wildlife species.	Close trails using seasonal or small area closures on a case-by-case basis when closures would protect wildlife species during critical life periods.	Close trails only in response to critical threats to wildlife. Employ seasonal and site closures as the primary closure techniques.
Introduced Species, including Dogs and Cats (I)	No similar action.	Remove feral animals from the NCA by coordinating with appropriate local, State, and federal agencies on animal trapping and transfer of	Remove feral animals from the NCA by coordinating with appropriate local, State, and federal agencies on animal trapping and transfer of	Remove feral animals from the NCA by coordinating with appropriate local, State, and federal agencies on animal trapping and transfer of

*Underlining shows changes from Draft RMP/EIS Alternative C.

Note: (L) denotes land use planning decisions; (I) denotes implementing decisions.

Table ES-1. Summary of the Management Direction

	NO ACTION	ALTERNATIVE B	PROPOSED PLAN*	ALTERNATIVE D
		populations posing a threat to wildlife health or human health and safety. Prohibit bird feeders in the NCA and educate visitors about the impacts of bird feeders on the wildlife.	populations posing a threat to wildlife health or human health and safety. Prohibit bird feeders within the NCA.	populations posing a threat to wildlife health or human health and safety. Prohibit bird feeders within the NCA.
Special Status Species Management (L)	Manage Special Status Species for full regulatory compliance and consistent with the applicable USFWS Biological Opinion.	Maintain and protect Special Status Species habitat to ensure suitable habitat conditions and viable populations. Emphasize scientific research and monitoring of Special Status Species. Encourage partnerships with universities and other educational groups to facilitate research on and monitoring of Special Status Species.	Maintain and protect Special Status Species habitat to ensure suitable habitat conditions and viable populations. <u>Encourage</u> scientific research and monitoring of Special Status Species. Encourage partnerships with universities and other educational groups to facilitate research on and monitoring of Special Status Species.	Maintain and protect Special Status Species habitat to ensure suitable habitat conditions and viable populations. Emphasize scientific research and monitoring of Special Status Species. Encourage partnerships with universities and other educational groups to facilitate research on and monitoring of Special Status Species.
Potential Threats to Special Status Species from Recreation (I)	No similar action.	Avoid disturbance or development in areas of Special Status Species potential habitat. Develop and distribute interpretive information that emphasizes the potential effects of recreation use on wildlife.	Mitigate disturbance or development in areas of Special Status Species habitat discovered by conducting site-specific surveys. Develop and distribute interpretive information that emphasizes the potential effects of recreation use on wildlife.	Mitigate disturbance or development in areas of Special Status Species habitat discovered by conducting site-specific surveys. Develop and distribute interpretive information that emphasizes the potential effects of recreation use on wildlife.

*Underlining shows changes from Draft RMP/EIS Alternative C.

Note: (L) denotes land use planning decisions; (I) denotes implementing decisions.

Table ES-1. Summary of the Management Direction

	NO ACTION	ALTERNATIVE B	PROPOSED PLAN*	ALTERNATIVE D
LIVESTOCK GRAZING				
Placement of Mineral and Salt Supplements (L)	Locate salt and mineral supplements a minimum of 1 mile from water.	Prohibit salt and mineral supplement placement within the NCA.	Prohibit salt and mineral supplement placement within the NCA.	Prohibit salt and mineral supplement placement within the NCA.
Range Improvements for Livestock Grazing Purposes (L)	Develop new range improvements, as needed, and if consistent with the Sloan Canyon NCA Act, to reach a uniform distribution of livestock consistent with management objectives. Authorize no new range improvements for livestock grazing purposes within the Wilderness.	Authorize no new range improvements for livestock grazing purposes within the NCA.	Authorize no new range improvements for livestock grazing purposes within the NCA.	Authorize no new range improvements for livestock grazing purposes within the NCA.
GEOLOGY AND SOILS				
Management of Geologic Research (I)	Manage for full regulatory compliance.	Allow nonintrusive geologic research throughout the NCA, and manage for full regulatory compliance.	Allow intrusive geologic research throughout the NCA by permit and <u>apply appropriate restrictions in the Wilderness</u>. Prohibit intrusive geologic research in the Sloan Canyon Petroglyph Site and its northern access.	Allow intrusive geologic research throughout the NCA by permit and manage for full regulatory compliance. Prohibit intrusive geologic research in the Sloan Canyon Petroglyph Site and its northern access. Apply appropriate restrictions in the remainder of the Wilderness.

*Underlining shows changes from Draft RMP/EIS Alternative C.

Note: (L) denotes land use planning decisions; (I) denotes implementing decisions.

CHAPTER ONE

Purpose and Need

1. PURPOSE AND NEED

The Cities of Henderson and Las Vegas, Nevada, form one of the fastest growing metropolitan areas in the United States. The well-known lights of The Strip are now surrounded by a rapidly expanding urban and suburban metropolitan area of homes, businesses, and infrastructure. Yet immediately on the edges of this expansion, much of the land is open and undeveloped. This constantly changing interface of urban and natural settings provides unique challenges and opportunities for the Bureau of Land Management (BLM) Las Vegas Field Office, which manages public lands composing much of this open space.

The purpose of the Sloan Canyon NCA is as follows:

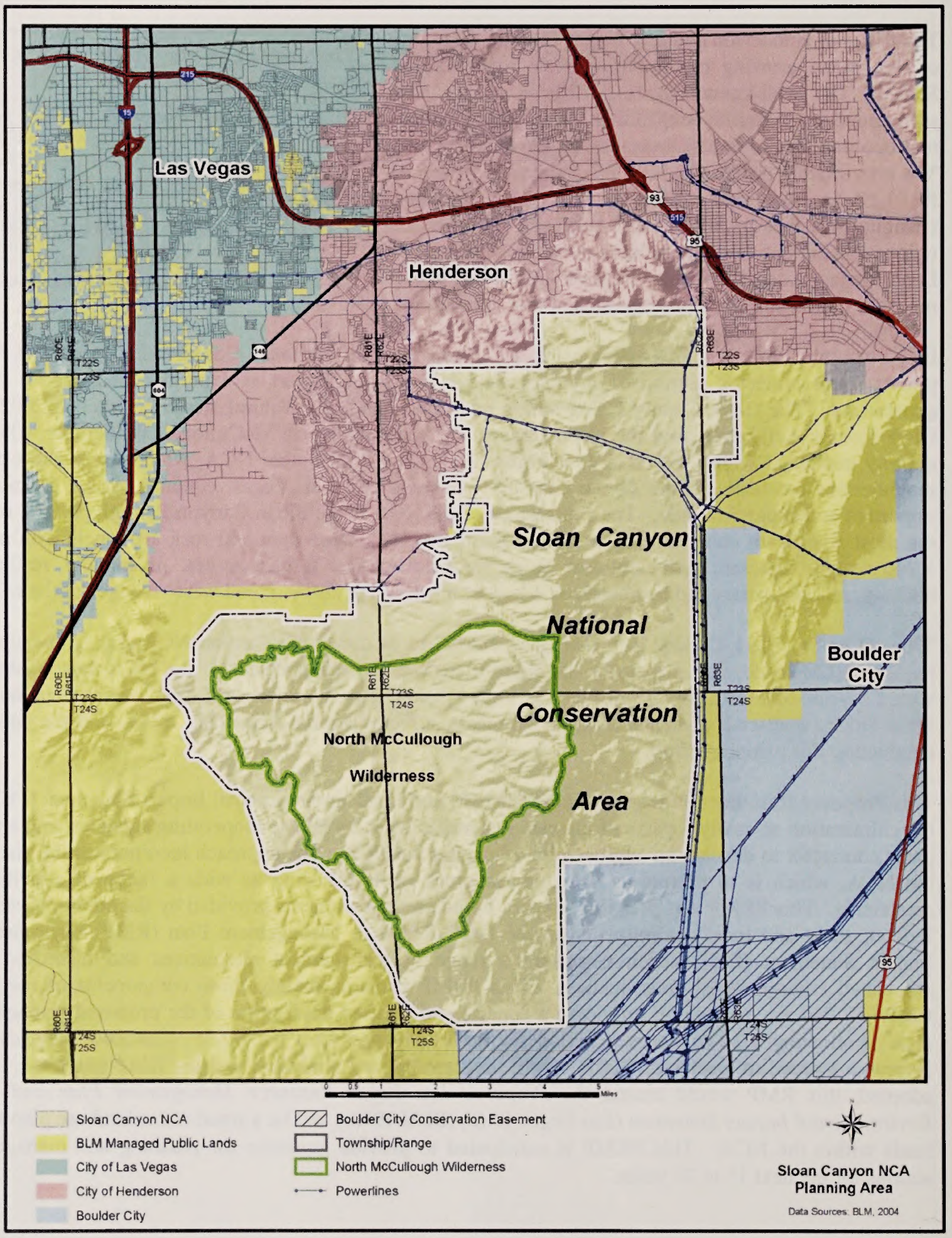
" . . . to conserve, protect, and enhance for the benefit and enjoyment of present and future generations the cultural, archaeological, natural, wilderness, scientific, geological, historical, biological, wildlife, educational, and scenic resources of the [Sloan Canyon] Conservation Area."

In November 2002, Congress designated the Sloan Canyon National Conservation Area (NCA) to preserve and protect a portion of southern Nevada's Mojave Desert as a permanent asset for future generations. The Clark County Conservation of Public Land and Natural Resources Act of 2002 (the Clark County Act) established the Sloan Canyon NCA and the North McCullough Wilderness, which is entirely contained within the NCA (see Figure 1.1). The 48,438-acre NCA, which forms the natural, mountainous southern skyline of the City of Henderson and Las Vegas, contains unique scenic and important archaeological sites. The centerpiece of the NCA is the Sloan Canyon Petroglyph Site, one of the most significant cultural resources in southern Nevada. More than 300 rock art panels with nearly 1,700 designs represent native cultures dating from the Archaic to historic era. Eventually, residential housing, schools, parks, and businesses will border much of the northern and western edges of the NCA.

Title VI of the Clark County Act, hereafter referred to as the Sloan Canyon NCA Act (Appendix A), requires BLM to develop a plan for the appropriate use and management of the NCA and Wilderness within 3 years of enactment. The BLM Las Vegas Field Office in collaboration and communication with other federal and state agencies, local governments, affected Native American tribes, and the public is conducting this planning effort.

This Proposed Resource Management Plan (PRMP) and Final Environmental Impact Statement (FEIS) is the culmination of nearly 3 years of intense, systematic work by BLM, cooperating agencies, and a third-party contractor to develop an approach for managing the NCA. The approach incorporates the vision of the NCA, which is to protect its valuable resources while allowing as wide a range of activities as reasonable. This PRMP was prepared, in part, based on the comments provided by the public, tribes, and federal, state, and local governments on the Draft Resource Management Plan (RMP)/Environmental Impact Statement (EIS), which compared a range of management alternatives and identified their associated environmental consequences. This PRMP contains mainly those components of the Draft RMP/EIS that are essential to providing a concise and focused description of the proposed management plan. Following a 30-day protest period for the PRMP and after the 60-day Governor's consistency review, a Record of Decision (ROD) would be prepared and published and the RMP approved. Once adopted, this RMP would amend the *Proposed Las Vegas Resource Management Plan and Final Environmental Impact Statement* (*Las Vegas RMP*) (BLM 1998a) and be a stand-alone land use plan for all lands within the NCA. This PRMP is anticipated to provide guidance for planning and management actions for the next 15 to 20 years.

Figure 1.1. Sloan Canyon NCA Planning Area



This PRMP contains management direction related to both general "land use planning" decisions and "implementing" decisions. The land use planning decisions establish goals and objectives for managing the NCA's resources, as well as associated actions and uses. Implementation decisions, on the other hand, constitute BLM's final approval for on-the-ground actions to proceed. For example, implementation decisions can determine the design, development, and designation of roads, trails, and visitor centers, or authorize vegetation restoration projects.

Anyone who participated in the RMP process and has an interest that may be adversely affected may protest the land use planning decisions contained in the PRMP (43 Code of Federal Regulations [CFR] 1610.5-2). Protests may raise only those issues that were submitted for the record during the planning process. Protests must be submitted to the BLM Director after the PRMP is published and prior to the issuance of the ROD. After that time, there is no further opportunity for decision review or administrative remedies for protest resolution. Unlike land use decisions, implementation decisions are not subject to protest but are subject to administrative remedies and review, primarily through appeals to the Office of Hearings and Appeals (BLM 2004a). Additional information on the protest and appeals process can be found in the Dear Reader Letter that accompanies this PRMP. The Summary of the Management Direction (Table ES-1) indicates which actions are land use and which are implementation.

1.1 BACKGROUND

The Sloan Canyon NCA Act directs the Secretary of the Interior, through BLM, to manage the Sloan Canyon NCA in a manner that conserves, protects, and enhances the Conservation Area's resources for the benefit and enjoyment of present and future generations. The purpose of the Sloan Canyon NCA Act is to conserve, protect, and enhance the cultural, archaeological, natural, wilderness, scientific, geological, historical, biological, wildlife, educational, and scenic resources, which are important reasons for the establishment of the NCA. The designation of the North McCullough Wilderness, administered under the Wilderness Act of 1964 and the Clark County Act, Title II ("Wilderness Areas") (Appendix A), requires that 14,763 acres within the NCA be preserved and protected in their natural, primitive condition.

The Sloan Canyon NCA Act and the Clark County Act, Title II ("Wilderness Areas"), sets a number of ground rules for the development of a management plan for the NCA and the Wilderness, including the following:

- **Uses**—Allow only such uses of the NCA that conserve, protect, and enhance the Conservation Area's resources
- **Motorized Vehicles**—Designate roads and trails for motorized vehicle use; all others would be closed except for administrative or emergency purposes
- **North McCullough Road and Trail Right-of-Way (ROW)**—Recommend a location for a ROW to provide the City of Henderson rural roadway access to the NCA
- **Non-Motorized Trails**—Convey to the City of Henderson two ROWs for nonmotorized trails
- **NCA Funding**—Sell nearby public land to fund the conservation and management of the NCA, including the construction of facilities and research on archaeological and geological resources
- **Litter Cleanup Plan**—Develop a litter cleanup plan and public lands awareness campaign

- **Grazing**—Allow permitted grazing to continue, subject to all applicable laws, regulations, and executive orders
- **Mineral Rights**—Withdraw all lands from mineral exploration, leasing, and development, subject to valid and existing rights
- **Hunting**—Maintain the State of Nevada jurisdiction with respect to hunting and trapping, although they may be restricted in designated areas and periods for safety or administrative reasons.

The Sloan Canyon NCA Act also declared that no buffer zones or limitations on uses of land outside the NCA may be established, and the Clark County Act, Title II ("Wilderness Areas") contains directives for management of all 18 wilderness areas designated by the Act, including the North McCullough Wilderness.

BLM, through discussions with cooperating agencies and based on input received during the public scoping process, and the direction, intent, and spirit of the Sloan Canyon NCA Act, developed the following vision for managing the NCA:

Vision

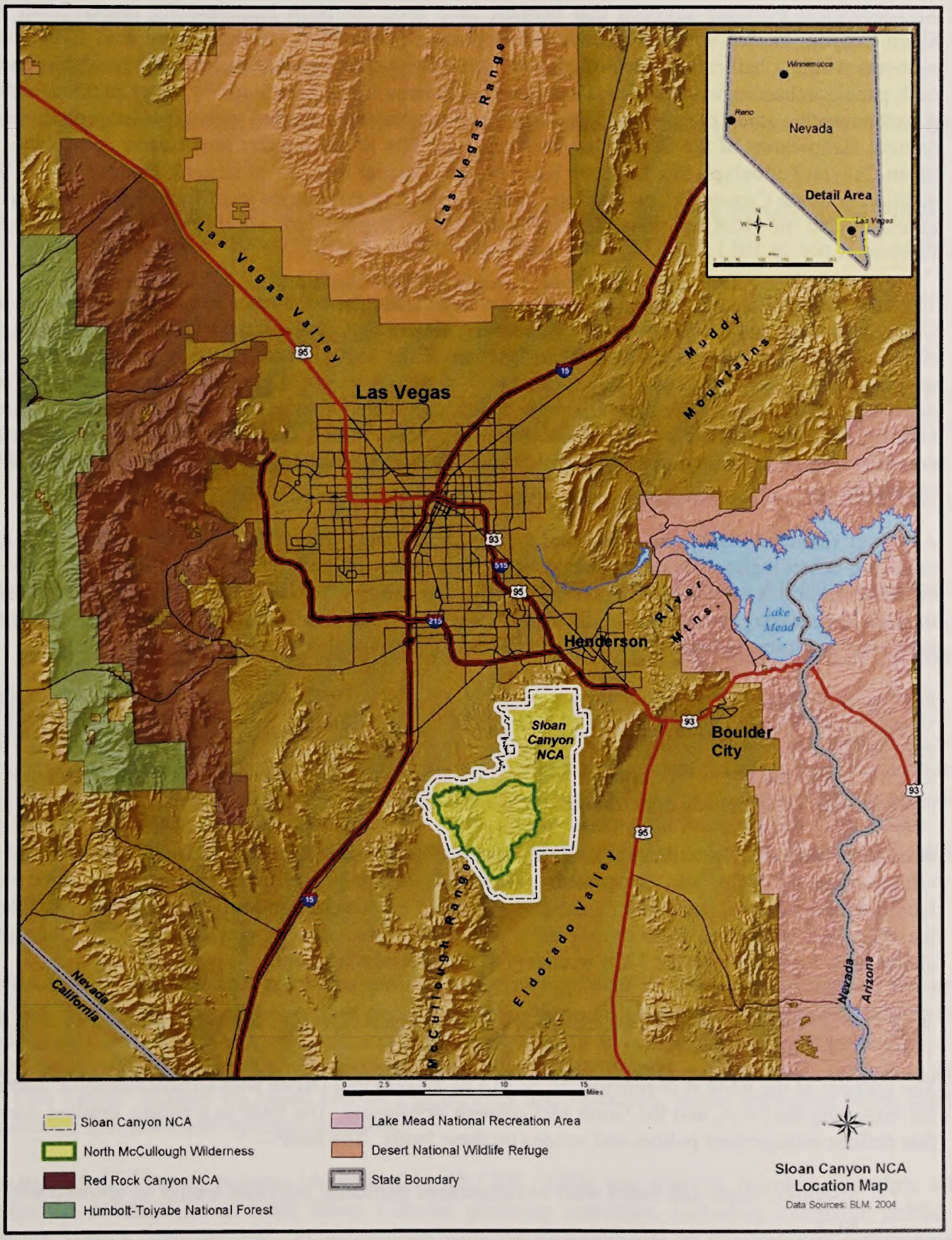
The BLM will manage the Sloan Canyon NCA to preserve, protect, and enhance the area's cultural features and natural resources and wilderness values for the benefit and enjoyment of present and future generations by—

- Protecting the Sloan Canyon Petroglyph Site and respecting the canyon for its importance to Native Americans
- Providing education on the importance of preserving and protecting the area's cultural, natural, and wilderness values
- Providing information and education on Sloan Canyon NCA's resources in a creative manner
- Providing recreational opportunities that are compatible with and protect the various elements of the natural landscape.

1.2 DESCRIPTION OF THE NATIONAL CONSERVATION AREA

The Sloan Canyon NCA encompasses the northern portion of the McCullough Range, lies southeast of the City of Las Vegas, and borders the City of Henderson (Figure 1.2). Volcanoes formed the McCullough Range and a long basalt spine dominates the topography within the NCA. The eastern slopes of the range are much steeper than the western slopes and the ridgeline offers excellent views of

Figure 1.2. Sloan Canyon National Conservation Area Location Map



the Las Vegas Valley, numerous mountains, and the Eldorado and Jean Dry Lakes. Elevations within the NCA range from approximately 1,800 feet on the southern border to 5,000 feet at Black Mountain.

Archaeological evidence suggests that humans have used the NCA resources for nearly 7,000 years. Sloan Canyon, located within the southwestern portion of the NCA, contains more than 1,700 rock art elements within a half-mile stretch of canyon. Although cultural affiliation has not been determined for each panel, archaeologists studying Sloan Canyon believe it has been used by many previous cultures. An ethnographic study completed for the RMP and ongoing consultation with tribes have confirmed the cultural significance of the Sloan Canyon Petroglyph Site to present-day area Native Americans. The Sloan Canyon Petroglyph Site has been listed on the National Register of Historic Places since 1978. In addition to Sloan Canyon Petroglyph Site, cultural resources inventories identified 19 other rock art sites in and around the NCA but none have the quantities of elements nor are they as elaborate as in Sloan Canyon.

The McCullough Range is located in the Mojave Desert near the confluence of two geographic zones, the Colorado Plateau and the Great Basin. This setting plays a major role in the natural characteristics of the NCA. The primary ecosystem in northern portion of the McCullough Range is Mojave Desert scrub, which is dominated by creosote and bursage with scattered stands of cholla cactus in varying densities depending on elevation. The Blue Diamond cholla, considered a potential candidate species by the U.S. Fish and Wildlife Service, is also found within the NCA. Small communities of unique and isolated vegetation types, including several Special Status Species of beardtongue, exist within canyon and wash microclimates.

Although essentially only one ecosystem type is represented, the NCA supports a variety of wildlife, including desert bighorn sheep, mountain lions, Gila monsters, and the threatened desert tortoise. Two artificial wildlife water locations (guzzlers) are located within the NCA. These guzzlers were developed through the cooperative efforts of BLM, the Nevada Department of Wildlife (NDOW), and private conservation groups interested in improving habitat for bighorn sheep and other wildlife species.

Recreation is becoming an important use of the North McCullough Range. As urban growth in the Las Vegas Valley has enveloped the northern portion of the NCA, hiking, mountain biking, and off-highway vehicle (OHV) use have become more prevalent. This is in contrast to the southern portion of the NCA, which contains the North McCullough Wilderness. Because of its rugged character, this southern portion receives little visitation and opportunities abound for solitude, and primitive and unconfined recreation.

Because of the NCA's proximity to Las Vegas, about 40 ROWs were on file in the BLM Las Vegas Field Office when the NCA was designated. These ROWs are primarily for power lines, flood control facilities, access roads, and communication equipment. Although the Sloan Canyon NCA Act withdraws the NCA and wilderness from mining entry and the establishment of new claims, 11 existing mining claims were located within the NCA boundary at the time of enactment.

1.3 PURPOSE AND NEED FOR THE RESOURCE MANAGEMENT PLAN

The purpose of the RMP is to provide the BLM Las Vegas Field Office with a comprehensive framework for managing the NCA, and the North McCullough Wilderness. The RMP is a public, detailed document that defines management polices and actions on these lands. The RMP—

- Specifies where and under what circumstances particular activities would be allowed within the NCA

- Updates the existing management policies for lands within the NCA, including the Wilderness, and the resource allocations affecting the NCA, consistent with the spirit and intent of the Sloan Canyon NCA Act
- Incorporates available new data
- Resolves issues identified during public scoping
- Integrates or modifies uses of public land that have occurred since the *Las Vegas RMP* (BLM 1998a)
- Provides public land management measures in accordance with the Federal Land Policy and Management Act of 1976 (FLPMA, 43 United States Code [U.S.C.] 1701 et seq.), BLM's Land Use Planning Handbook, and other existing statues, regulations, and policy.

The RMP is needed for the following reasons:

- To comply with the Sloan Canyon NCA Act, Title VI of the Clark County Conservation of Public Land and Natural Resources Act of 2002 (16 U.S.C. 1132, Public Law 107-282), which established the NCA. The legislation mandates that BLM consult with the State of Nevada, the City of Henderson, Clark County, and any other interested persons to develop a management plan for the conservation area.
- To comply with BLM National Landscape Conservation System policy. All NCAs are required to have a stand-alone RMP that consolidates all land use plans and implementation or activity plans relevant to the planning area (BLM Instruction Bulletin No. 2001-022, February 22, 2002).

The implementation of this RMP constitutes a major federal action and is therefore subject to the National Environmental Policy Act of 1969 (42 U.S.C. 4321 et seq.), which requires federal agencies to consider environmental consequences in the decisionmaking process. The President's Council on Environmental Quality issued regulations for implementing the National Environmental Policy Act, including provisions on the content and the procedural aspects of the required environmental analysis (40 CFR 1500). The most comprehensive level of analysis is an EIS—the level being applied to the Sloan Canyon NCA RMP.

1.4 THE PLANNING PROCESS

BLM develops plans to protect resources and to guide management of the public lands and resources. These land use plans and associated decisions are the basis for every on-the-ground action BLM undertakes, and they ensure management strategies comply with laws, regulations, and guidelines. The BLM has three primary levels of land use planning decisions—RMP level, activity level, and site-specific level. This PRMP focuses on broad resource objectives and direction, while providing some activity-level guidance and some site-specific decisions.

BLM's multistep planning process (described in 43 CFR 1600) was used to develop this plan, which represents the culmination of prior Sloan Canyon planning activities, including extensive public and cooperating agency involvement. In accordance with the requirements of the National Environmental Policy Act and FLPMA, the RMP was developed through an open, collaborative public process and was based on public input solicited throughout the planning effort. For example, input received on the Draft

RMP/EIS was considered and incorporated, as appropriate, in this PRMP. The planning process is described in greater detail below; in Chapter 5, Consultation and Coordination, and presented in Figure 1.3.

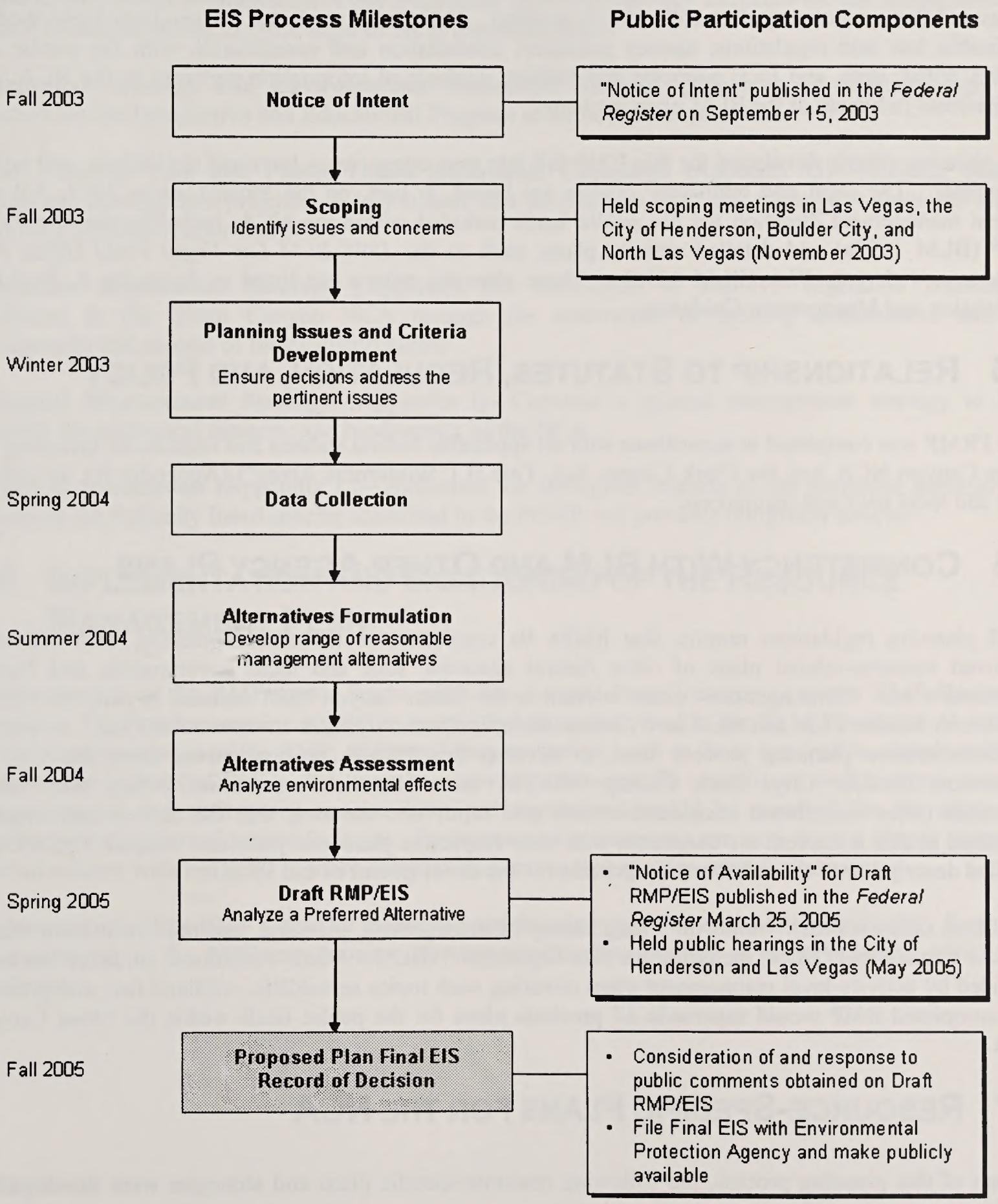
1.4.1 Planning Issues

The process for developing the PRMP for the Sloan Canyon NCA and North McCullough Wilderness began with identifying issues regarding perceptions of how the area should be managed. The issues identified by stakeholders and interested parties for the Sloan Canyon NCA relate directly to requirements of the Sloan Canyon NCA Act and the Clark County Act, Title II ("Wilderness Areas"), or resource management and land use planning. Although these issues received special attention during the development of the RMP, other basic environmental and management considerations were also incorporated into the plan to provide comprehensive management guidance for all resources and to satisfy legal requirements.

Six overarching planning issues were identified in the Baseline Assessment of the Needs and Issues for Developing a Management Plan for the Sloan Canyon National Conservation Area (BLM 2003a). These issues were reinforced and expanded by the public, tribes, and State and local government cooperators through the scoping process:

- How will the cultural, natural, and wilderness resources of the Sloan Canyon NCA and the North McCullough Wilderness be preserved for current and future generations?
- How will the cultural, natural, and wilderness resources be interpreted for visitors to the NCA and non-visitors who may have an interest in learning more about the resources?
- How will visitors' activities and uses be managed in a manner that preserves the cultural, natural, and wilderness resources while providing reasonable access to and enjoyment of the NCA?
- How will management of the Sloan Canyon NCA be integrated in a manner that is compatible with the plans and needs of Native American tribes, the City of Henderson, Clark County, and other local, state, and federal agencies?
- What facilities and infrastructure are needed to provide visitor services, information, and administration of the NCA?
- How will the management plan be responsive to changing conditions, stemming primarily from a larger urban interface, to ensure the long-term protection of the area's resources?

Figure 1.3. Sloan Canyon Planning Process



1.4.2 Planning Criteria

BLM regulations guiding the development of RMPs require the preparation of planning criteria (43 CFR 1610). These criteria guide the development of the plan and ensure that it is tailored to the identified issues and that unnecessary data collection is avoided. The criteria are based on standards prescribed by applicable law and regulations; agency guidance; consultation and coordination with the public and federal, tribal, state, and local agencies and entities; analysis of information pertinent to the NCA; and professional judgment of the BLM planning team.

The planning criteria developed for this RMP fall into two categories— laws and regulations, and policy statements. The legal and regulatory criteria are based, in part, on the Sloan Canyon NCA Act and current management direction for the public lands included within the NCA, including the *Las Vegas RMP* (BLM 1998a) and detailed activity plans, such as the *1998 BLM Las Vegas Field Office Fire Management Activity Plan* (BLM 1998b). These planning criteria are listed in Appendix A, Enabling Legislation and Management Guidance.

1.5 Relationship to Statutes, Regulation, and Policy

This PRMP was completed in accordance with all applicable federal statutes and regulations including the Sloan Canyon NCA Act, the Clark County Act, Title II ("Wilderness Areas") (Appendix A), as well as state and local laws and regulations.

1.6 Consistency With BLM and Other Agency Plans

BLM planning regulations require that RMPs be consistent, to the extent possible, with officially approved resource-related plans of other federal agencies, state and local governments, and Native American tribes. Other agencies' plans relevant to the Sloan Canyon NCA include, in part, the *City of Henderson Master Plan* and the *Clark County Multiple Species Habitat Conservation Plan*. As part of the collaborative planning process used to develop this PRMP, representatives from the City of Henderson, Boulder City, Clark County, NDOW, State Historic Preservation Office, and Native American tribes contributed considerable time and input into ensuring that the actions and impacts contained in this document are consistent with their respective plans and policies. Chapter 5 provides a detailed description of the collaboration process for the development of this PRMP.

The Sloan Canyon PRMP builds on a long history of management, planning, and implementation within the Las Vegas Field Office, including the *Las Vegas RMP* (BLM 1998a). Additional guidance has been provided by activity-level management plans covering such topics as wildlife, wildland fire, and grazing. The completed RMP would supersede all previous plans for the public lands within the Sloan Canyon NCA.

1.7 Resource-Specific Plans for the NCA

As part of this planning process, the following resource-specific plans and strategies were developed to provide resource-specific management guidance:

Recreation Monitoring Plan (Appendix B)—Contains the monitoring approach that would be used in the Sloan Canyon NCA to ensure that management actions meet the recreation management goals and objectives described in this PRMP

North McCullough Wilderness Management Plan (Appendix C)—Provides the detailed management guidance to implement actions selected as part of this PRMP for the North McCullough Wilderness over the next 10 years

Cultural Resources Management Plan (Appendix D)—Provides key elements for the management of cultural resources during the first stage of NCA implementation

Interpretive Strategy and Environmental Education Strategy (Appendix F)—Clarifies and sets direction for the Interpretive and Educational Program at the Sloan Canyon NCA

Litter Cleanup Plan and Public Lands Awareness Campaign (Appendix G)—Provides cleanup actions and management priorities to help ensure that an effective anti-litter message is delivered and to eventually result in a litter-free NCA

Vegetation Restoration Strategy (Appendix H)—Developed to improve vegetation community conditions in the Sloan Canyon NCA through the restoration of existing disturbances and the management and control of future disturbances.

Biological Management Strategy (Appendix I)—Contains a general management strategy to help maintain the ecological integrity and biodiversity of the NCA

Biological Assessment (Appendix L)—Addresses the biological impacts of the proposed management actions on the federally listed species identified in the PRMP and provides mitigation actions.

1.8 Implementation and Monitoring of the Resource Management Plan

Implementation of the RMP would begin when the Nevada State Director signs the RMP Record of Decision. This implementation would be accomplished as described in the BLM Handbook H-1617-1. During implementation of the RMP, additional documentation, such as those required to comply with the National Environmental Policy Act, may be necessary. Site-specific compliance with cultural resource and threatened and endangered species laws and regulations would be required for the siting and construction of trails and visitor facilities. Environmental assessments can vary from a simple statement of conformance with the ROD to more complex documents that analyze several alternatives.

Implementation of the RMP would be monitored and the plan would be evaluated periodically. Revisions or amendments to the RMP may be necessary to accommodate changes in resource needs, policies, or regulations.

CHAPTER TWO

Proposed Resource Management Plan

2. PROPOSED RESOURCE MANAGEMENT PLAN

This chapter describes the Proposed Resource Management Plan (PRMP) for the Sloan Canyon National Conservation Area (NCA), which contains the decisions that would guide future management of the Sloan Canyon NCA for the next 20 years. In addition, this chapter contains the changes made between the Draft RMP/Environmental Impact Statement (EIS) and the PRMP/Final EIS. The agency-preferred alternative analyzed in the Draft RMP was Alternative C, Moderate Developed Use. This alternative is the basis of the PRMP, however it was slightly modified based on internal reviews, cooperating agency collaboration, and public comments. The PRMP, used for the long-term management and protection of the NCA, is chosen from a compilation of the alternatives.

As part of the planning process, the public was invited to comment on the Draft RMP/EIS. The Bureau of Land Management (BLM) considered these comments when preparing this PRMP and would consider protests of the PRMP before issuing a Record of Decision (ROD). Once the PRMP is adopted (the ROD is issued), changes to it would require a formal public amendment or revision process, with corresponding levels of environmental analyses in compliance with the National Environmental Policy Act.

This PRMP contains management actions related to both general "land use" planning decisions and "implementing" decisions. The land use planning decisions establish goals and objectives for managing the NCA's resources, as well as associated actions and uses. The implementing decisions constitute BLM's final approval for on-the-ground actions to proceed.

Any person who participated in the RMP process, and that has an interest that may be adversely affected, may protest the proposed land use planning decisions contained in the PRMP (Code of Federal Regulation (CFR) 43 1610.5-2). The protests may raise only those issues that were submitted for the record during the planning process. Protests must be submitted to the BLM Director after the PRMP/FEIS is published in the fall of 2005 and prior to the issuance of the ROD. After that time, there is no further opportunity for decision review or administrative remedies for protest resolution. Unlike land use decisions, implementing decisions are not subject to protest but are subject to administrative remedies and review, primarily through appeals to the Office of Hearings and Appeals (BLM 2004a). The Summary of the Management Direction (Executive Summary Table ES.1) indicates which actions are land use and which are implementing. The "Dear Reader" letter that accompanies this PRMP provides a detailed explanation of protests and appeals.

Readers will notice an increased level of management direction in the recreation and wilderness resources. Although recreation use in the NCA historically has been low, visitation to the NCA will likely increase as the population of the Las Vegas Valley and the City of Henderson continues to grow and awareness of the NCA increases. Hence additional guidance is required to manage recreation issues and concerns. In addition, Appendix B contains a Recreation Monitoring Plan and Appendix C, the North McCullough Wilderness Management Plan, which details implementing actions for management of the Wilderness.

Please note that management actions often affect multiple resources. For example, many of the protections for the culturally important Sloan Canyon Petroglyph Site can be found in guidance under the recreation and wilderness resources. In addition, because they hare no major planning issues or concerns, the following resources do not contain specific management direction: water resources and quality, air quality, minerals, abandoned mines, and hazardous materials.

2.1 DEVELOPMENT OF THE PROPOSED RESOURCE MANAGEMENT PLAN

The first step in the planning process was to develop a vision for the NCA: to manage the Sloan Canyon NCA to preserve, protect, and enhance the area's cultural features and natural resources for the benefit and enjoyment of present and future generations. The comments and recommendations received during scoping from the public, tribes, cooperating agencies, and BLM resource specialists, which varied in range between retaining the natural character of the NCA and having different levels of NCA facility development and resource use, were analyzed within this framework. Alternative themes (in addition to Alternative A: No Action) were prepared to reflect the various development levels (Alternative B: Emphasize Natural Character; Alternative C: Moderate Developed Use; Alternative D: Emphasize Developed Uses). All of the scoping comments and recommendations were placed under one of the four alternative management scenarios. With the exception of recommendations that were outside the scope of the Sloan Canyon NCA Act and Clark County Act, Title II ("Wilderness Areas") and that could not be enacted for statutory or regulatory reasons, all comments and recommendations by participants during the scoping process were included in one or more of the management alternatives.

With alternative themes defined, resource specialists from BLM and the cooperating agencies developed specific objectives and actions for their area of expertise. The BLM planning team and cooperating agencies worked closely together to develop the alternatives, to carefully review the alternatives to ensure consistency within each alternative management scenario, and to identify any potential conflicts among resource prescriptions that might occur within the alternatives.

The goal of alternatives development was to construct a range of management actions and tools to balance the predicted increase in use of the NCA with protection of the NCA's outstanding characteristics, such as its primitive character and cultural resources. Alternatives had to meet the purpose and need of the NCA management plan (Chapter 1); be viable and reasonable; provide a mix of resource protections, management use, and development; be responsive to issues identified during scoping; and meet the established planning criteria, federal laws, regulations, and BLM planning policy.

Visitor usage of the North McCullough Range was low before the designation of the Sloan Canyon NCA and North McCullough Wilderness. Due to rapid growth in the Las Vegas Valley, an increase in visitors is expected. To respond to any impact from such an increase in visitors, the alternatives and management actions contain flexibility to adjust future management approaches. This flexibility also allows for adjustments in response to unforeseen pressures from use or resource conflicts.

Alternative A: No Action

The No Action Alternative is required by the National Environmental Policy Act to provide a baseline for comparison of impacts of the other alternatives. The No Action Alternative was a continuation of current management and was based on available inventory data, existing planning decisions and policies, and existing land use allocations and programs. The current management was analyzed in detail in the Management Situation Analysis (BLM 2003b) and included direction and decisions contained in the *Las Vegas RMP* (BLM 1998a); all existing laws, regulations, and policy; the Wilderness Act of 1964; and the specific mandates that established the NCA and North McCullough Wilderness. The *Las Vegas RMP* (BLM 1998a) provides the overarching guidance for managing BLM lands in southern Nevada, whereas the Sloan Canyon NCA Act and Clark County Act, Title II ("Wilderness Areas") provide specific direction to BLM for managing the NCA and the Wilderness.

Alternative B: Emphasize Natural Character

Alternative B emphasized the natural character of the NCA and, in general, represented the most "hands-off" management approach while being the most resource-protective. Developed recreation, such as proposed trails, would be minimized, and opportunities for solitude and wilderness-type experiences would be maximized. Visits to the Sloan Canyon Petroglyph Site would be permitted only by guided tour. All existing roads and trails would be closed to the public for motorized use.

Alternative C: Allow Moderate Developed Use While Maintaining Natural Character

Alternative C focused on a moderate increase in development while maintaining the natural characteristics of the NCA. Recreational opportunities such as hiking, mountain biking, equestrian use, and dispersed camping would be provided, and a requirement to remain on designated trails, once developed, in certain areas would be established. The Sloan Canyon Petroglyph Site would be accessed mainly from a visitor center at the north end of Sloan Canyon, and guided tours would be required during heavy visitation periods. Most existing roads and trails would be closed to the public for motorized use.

Alternative D: Emphasize Developed Uses

Alternative D took a more active management approach, allowing maximum use while maintaining and enhancing resource conditions. This alternative emphasized developed uses of the NCA and included the greatest opportunity for recreational diversity. Off-highway vehicle (OHV) use would be authorized on a limited number of proposed trails, and opportunities for hiking, mountain biking, equestrian use, and camping would be maximized. The Sloan Canyon Petroglyph Site would be accessed from a visitor center at the north end of Sloan Canyon or from a visitor contact station at the Hidden Valley Trailhead on a self-guided basis. Guided tours would be offered on request.

2.2 SELECTION OF THE PROPOSED MANAGEMENT PLAN

The Proposed Management Plan was selected because it serves the purpose of the NCA as described by the enacting legislation and the NCA vision as developed by the interagency planning team. It provides for moderate levels of developed recreation, facilities, and transportation, with management actions to ensure that neither resources nor visitor experiences are unacceptably degraded. Elements of each of the draft alternatives, including Alternative B, the preferred Alternative C, and Alternative D, are included in the PRMP. Section 2.3 provides detailed management for each resource or resource use within the NCA, as appropriate. Table ES.1 in the Executive Summary summarizes and compares key management under the PRMP and the alternatives considered in the Draft RMP (BLM 2005).

The Sloan Canyon NCA Act directed BLM to grant the City of Henderson a right-of-way (ROW) for the North McCullough Road (N-65874), which is envisioned as a scenic roadway constructed to provide access to the NCA, trailheads, and overlook points. The Act requires BLM to recommend a location for the North McCullough Road as part of this planning process. Based on ground surveys, field visits, impact assessments, and extensive dialogue with City of Henderson planners and engineers, as well as cooperating agencies, BLM recommends the proposed Northern Corridor as the location for North McCullough Road. Any future development related to this scenic roadway-associated trail would require additional environmental review.

2.3 CHANGES FROM THE DRAFT TO THE PROPOSED RMP/FEIS

This section contains a summary of the differences in the management actions between the preferred alternative in the Draft RMP/EIS and this proposed plan. The changes were made based on internal reviews, agency collaboration, and public comments.

- The semi-primitive management emphasis area has been extended to the north on the east side of the NCA to include Black Mountain and additional critical bighorn habitat.

- The Proposed Management Plan has been modified to allow cross-country hiking and equestrian use in areas designated for trail use only until BLM trails are established and in use, after which some or all use may be restricted to proposed trails. Additional trails would be planned, designed, and constructed through a systematic process that would evaluate needs, potential uses, suitable destinations, and public interest, through an environmental assessment. A hiking trail system with a wide range of uses is anticipated. As in the original preferred alternative, hiking trails would not be limited to the two ROWs for hiking trails that were previously issued to the City of Henderson, as prescribed by the Sloan Canyon Act (one is included in the ROW for the North McCullough Road).

- Unauthorized constructed and social trails would be evaluated and considered for closure, restoration, or adoption into the trail system. All new disturbances within the NCA would be treated as trespasses, with appropriate administrative or law enforcement actions.

- Additional restrictions would be placed on equestrian use, including prohibiting watering at wildlife water developments and a requirement to remove animal waste at trailheads.

- Dogs would be allowed on-leash in designated areas and prohibited from the remainder of the NCA.

- All campfire fuels must be packed in and out; no fuels natural to the NCA can be used. BLM would encourage the use of portable stoves for preparing meals.

- Rockhounding is prohibited within the NCA.

- Commercial special recreation permits (SRPs) would be issued on a case-by-case basis to outfitters and guides.

- Management actions for the Petroglyph Management Area (e.g., visitor use restrictions) would be implemented once adequate NCA infrastructure are in place.

- Casual and commercial collection of vegetation and reptiles would be prohibited throughout the NCA.

- Visitors would be educated to be sensitive to raptors during nesting seasons.

2.4 THE SLOAN CANYON NATIONAL CONSERVATION AREA PROPOSED RESOURCE MANAGEMENT PLAN

The PRMP is described below. The Plan contains specific management actions (numbered per resource [e.g., MEA 1]), as well as background information, that would guide future decisions.

2.4.1 Management Emphasis Areas

Management Emphasis Areas (MEA) provide a framework for identifying BLM's management intent for a particular geographic area and for evaluating future actions and proposals. By assigning appropriate MEA categories to all portions of the NCA, future actions can be considered that have not been specifically addressed in this plan. This would help ensure that the RMP remains flexible and current over time.

Management Direction

The MEAs reflect the potential for increased development at the main access points for the NCA. The north access to Sloan Canyon around the potential visitor center would be zoned as Developed, and the highly visited Petroglyph Management Area would be a Semi-Primitive zone. In addition, the area north of the North McCullough Road and Trail ROW (N-65874), near the Dutchman Pass Trailhead, would be zoned Roaded Natural, as would the area south of the Quo Vadis Trailhead.

MEA 1: Manage use of the NCA consistent with the objectives of the Management Emphasis Areas (MEAs) identified in Figure 2.1.

Each MEA zone has a set of objectives that describe the physical, social, and managerial setting of the area and that provide standards for future management. To provide for a positive visitor experience, any future actions or improvements within a zone must be consistent with the established guidelines and expectations.

Objectives

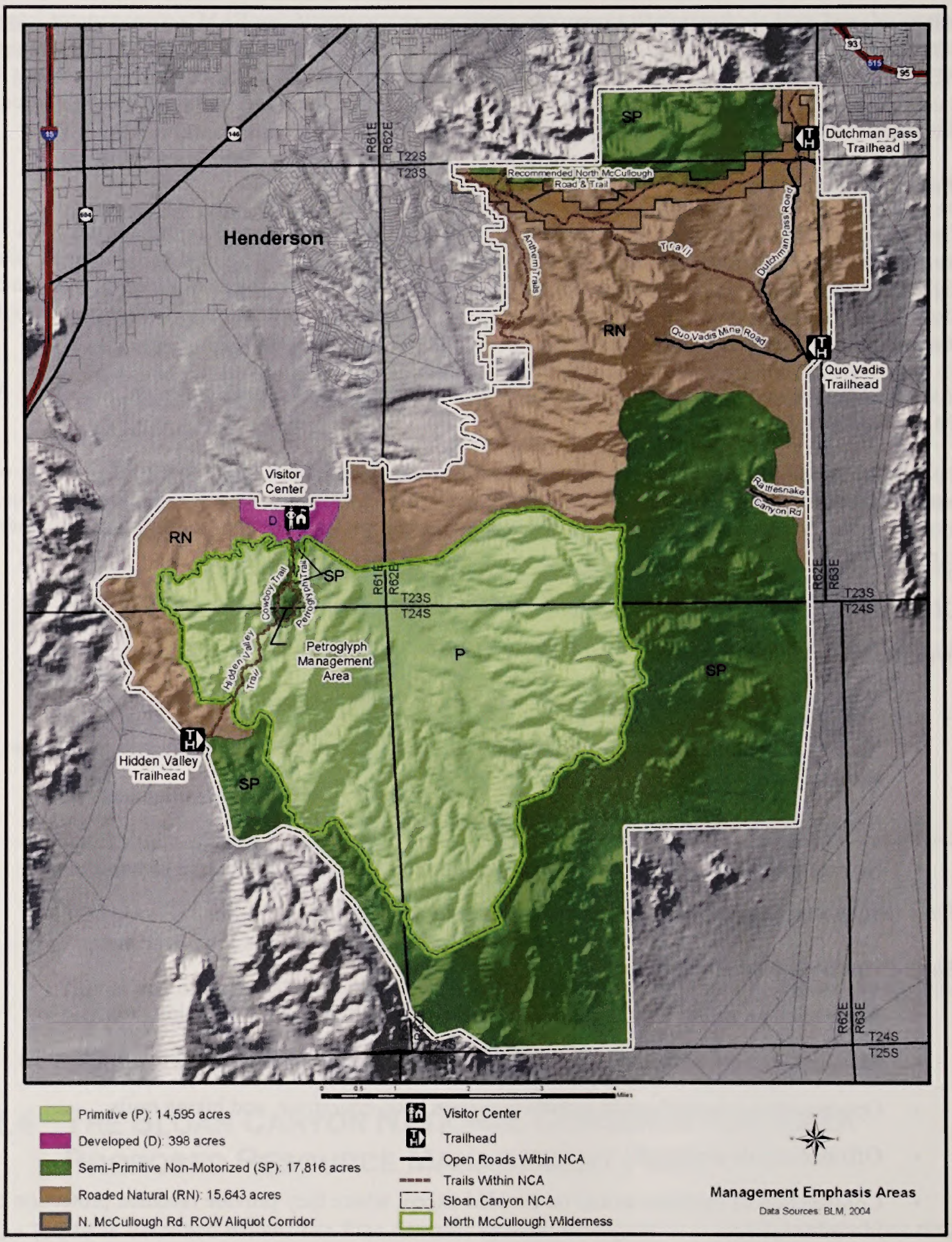
Primitive

- Includes remote areas not on primary travel routes or easily accessed.
- Access is by hiking and horseback; no mechanized vehicles (including mountain bikes) are allowed.
- Human interaction is rare to low; evidence of other uses is minimal.
- No onsite controls or improvements provided except those required for resource protection.
- More visitor risk is assumed; self-reliance is necessary.

Semi-Primitive; Non-Motorized

- Areas may not necessarily be remote and access may be easy, but human interaction is low.
- Motorized use is prohibited; existing roads could be closed and could be converted to trails.
- Opportunities provided could include mountain bike, equestrian, and hiking trails.
- Offsite controls preferred.
- Construction of facilities would be avoided except where they provide resource protection or aid in visitor safety.

Figure 2.1. Management Emphasis Areas



Roaded Natural

- The recreational experience is based on the natural setting.
- Human interaction is low to moderate, but more often on the low side.
- Includes areas with roads.
- Developments limited to improved access and those consistent with the natural environment.
- Opportunities provided may include roads, trails, and camping sites (new improvements for resource protection only).
- Onsite controls present but subtle.

Roaded Developed

- Recreation activities rely on and are consistent with the natural environment.
- Human interaction level moderate to high in more developed portions and low to moderate elsewhere.
- May include paved roads and buildings, but the design should blend with the natural environment.
- Onsite controls, facilities, and law enforcement noticeable.

Developed

- Substantial modification of the natural environment.
- Human interaction level moderate to high.
- Motorized use and parking available.
- Onsite controls obvious and facilities widely available.
- Law enforcement moderately visible.

2.4.2 Recreation

Goal

Provide recreation opportunities within the NCA, including the North McCullough Wilderness, consistent with the Sloan Canyon NCA Act and the Clark County Act, Title II ("Wilderness Areas").

Objectives

- Provide an array of outdoor recreation opportunities and experiences within the NCA.
- Manage recreation uses so that recreation-related disturbances are minimized.

Management Direction

Recreational use of the NCA historically has been at low to moderate levels, and future actions by both BLM and the surrounding communities would contribute to the kinds of recreational opportunities

available in the NCA. To be flexible and responsive to increased user demands, recreation would be managed for experiences and beneficial outcomes based on the MEA zone objectives described in Section 2.4.1. The character of the management zones ranges from Primitive to Developed in terms of their physical, social, and administrative attributes, and these attributes define the character of the respective recreation opportunities (e.g., activities available).

Because use of the NCA will likely change dramatically over the coming years, this RMP contains flexible management guidance, which would be refined into specific management criteria based on use and resource monitoring. Visitation and resource monitoring would be used to assess and establish the NCA's baseline resource conditions and document any changes to them (Appendix B, Recreation Monitoring Plan). Once the resource baselines are determined, a system such as Limits of Acceptable Change (LAC) could be used to establish thresholds for future actions.

REC 1: Use fees could be charged in designated areas of the NCA. Specific fee guidelines and amounts would be determined at a later time, consistent with nearby State and federal facilities.

REC 2: Interpretive information and materials pertaining to the NCA's unique cultural and natural resources would be provided to visitors to enhance their recreational experiences.

Hiking/Equestrian Use/Mountain Biking Areas

Based on likely amounts of use and in an effort to preserve visual and biological resources, the subsequent need for administrative controls, and the reduction of conflicts among users, the NCA would designate use areas for hiking, equestrian use, and mountain biking.

Cross-country hiking would be allowed in trail-use-only areas until BLM trails are established and in use, after which some or all of these areas may be restricted to hiking on designated trails. Additional trails would be planned, designed, and constructed through a systematic process that would evaluate needs, potential uses, suitable destinations, and public interest, through an environmental assessment. Under the proposed plan, a hiking trail system with a wide range of uses is anticipated. Hiking trails would not be limited to the two ROWs for hiking trails that were previously issued to the City of Henderson as prescribed by the Sloan Canyon Act (one is included in the ROW for the North McCullough Road).

REC 3: Designate hiking use areas—one area in which hiking would be limited to trails once they have been designated, constructed, and in use; and the other for cross-country hiking (Figure 2.2).

REC 4: In some areas, horses and pack animals would be required to remain on designated trails once trails are designated, constructed, and in use. Cross-country equestrian use would be allowed in other areas and horses and pack animals would be prohibited in high-use portions of the NCA (Figure 2.3).

REC 5: No animal, other than a horse, burro, or mule, could be used in the NCA for the purpose of transporting people or their possessions.

REC 6: Horse feed and hay must be certified weed-free to prevent the spread of noxious and invasive weeds.

REC 7: Watering of animals would be prohibited at wildlife water developments, and animal waste must be removed from trailheads.

REC 8: Mountain biking would be allowed only on a limited system of designated multiple-use trails and on designated vehicle roads (Figure 2.4).

Figure 2.2. Hiking

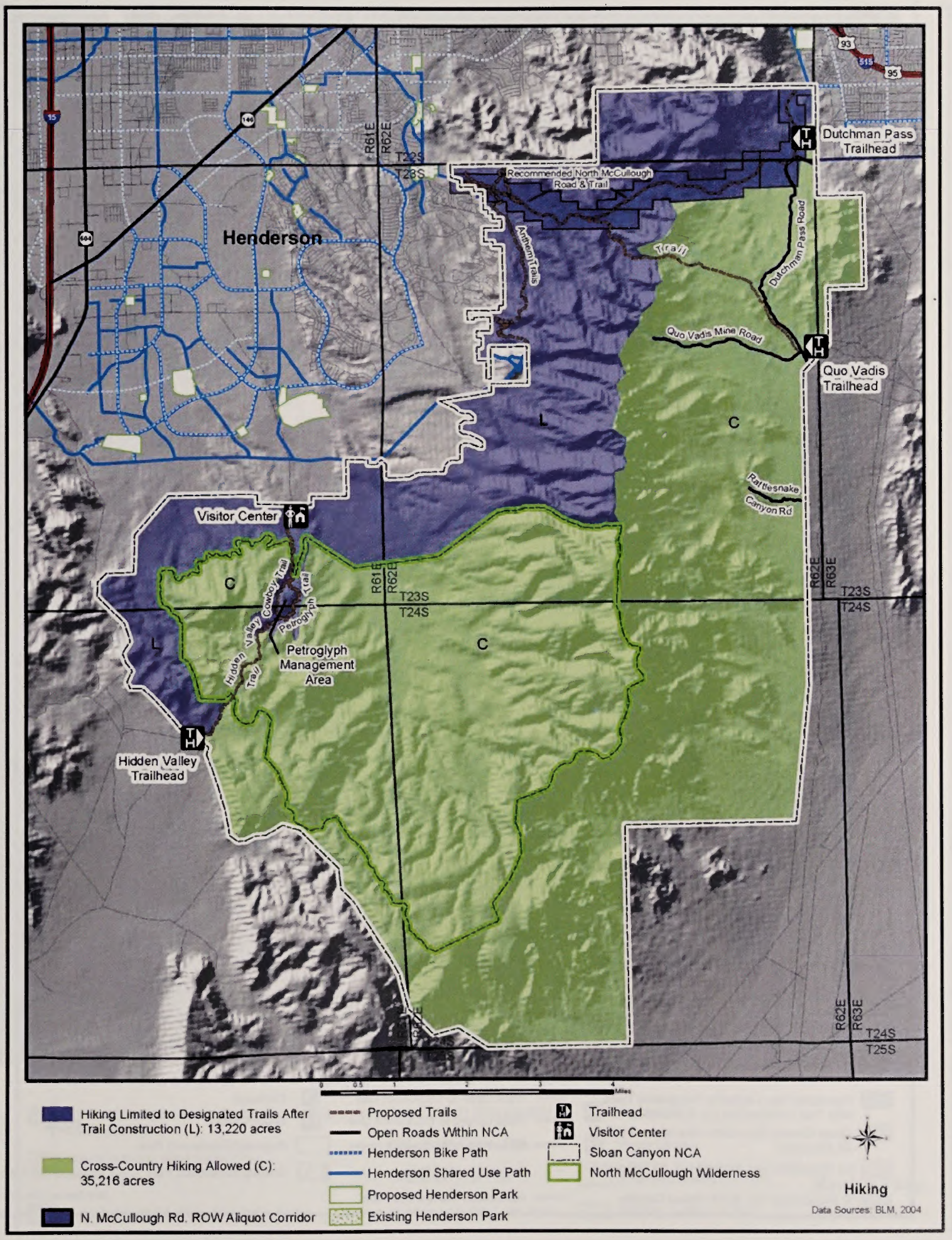


Figure 2.3. Equestrian Use

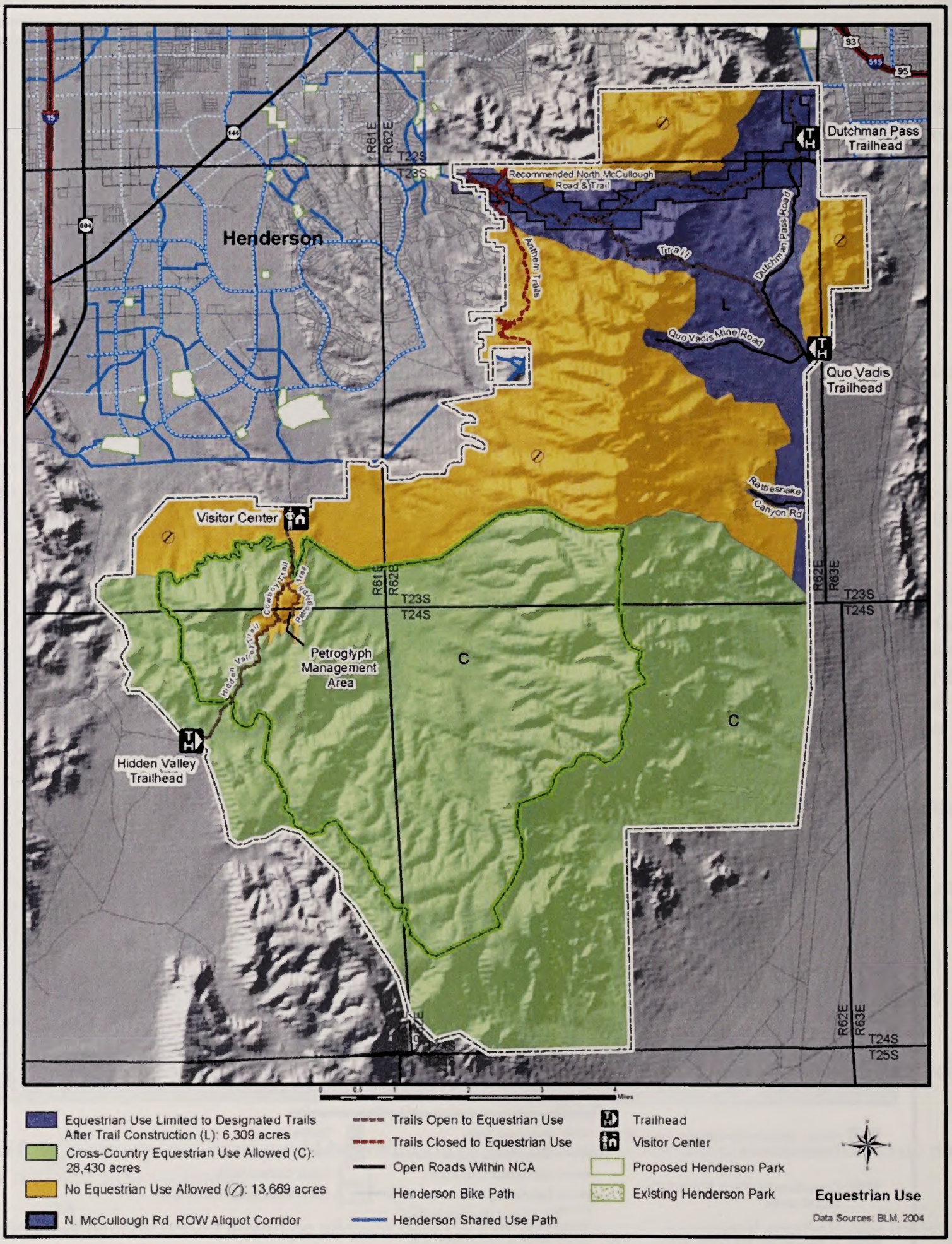
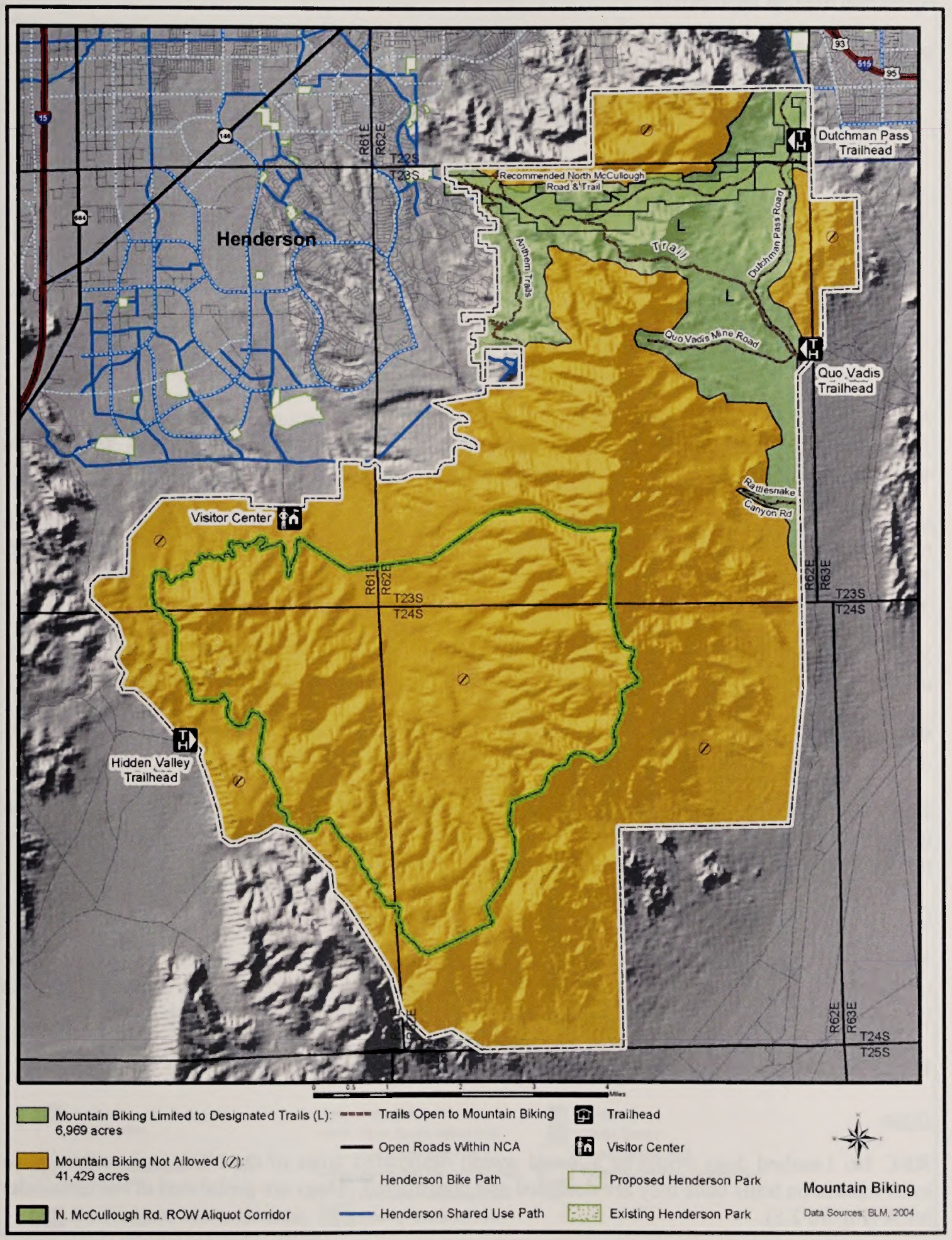


Figure 2.4. Mountain Biking



Trails

A trail system would be designed and constructed to accommodate multiple uses (hiking, biking, and equestrian use), as appropriate.

REC 9: Initially, the following trails would be proposed:

Proposed Trails	Activities
Petroglyph Trail	Hiking
Cowboy Trail	Hiking
Hidden Valley Trail	Hiking, equestrian use
Anthem Trail System (N-76312)	Hiking, mountain biking
North McCullough Trail (N-65874)	Hiking, equestrian use, mountain biking
Unnamed trail following east-west power line road	Hiking, equestrian use, mountain biking

Additional trails would be planned, designed, and constructed through a systematic process that would evaluate needs, potential uses, suitable destinations, and public interest, through an environmental assessment. Under the proposed plan, a trail system with a wide range of uses is anticipated.

Site-specific resource conditions would be considered when selecting trail locations and designing trail features; for example, trails would not be constructed within 1/4-mile of wildlife water developments. Trails development in sensitive natural or cultural areas would be avoided if possible. Wheelchairs would be allowed in the Wilderness, but BLM would not required to facilitate such uses.

REC 10: Trails would be added as needed and if their design and construction would not cause unacceptable impacts to sensitive cultural resources, natural resources, or wilderness values.

REC 11: All trails outside the Wilderness would be evaluated and developed with consideration to the *Americans with Disabilities Act of 1990* prior to construction and designation.

REC 12: Any unauthorized constructed or social trails would be evaluated and considered as to whether to close, restore, or adopt them into the trail system. Any unauthorized surface disturbance would be treated as a trespass and subject to appropriate administrative or law enforcement action.

OHV

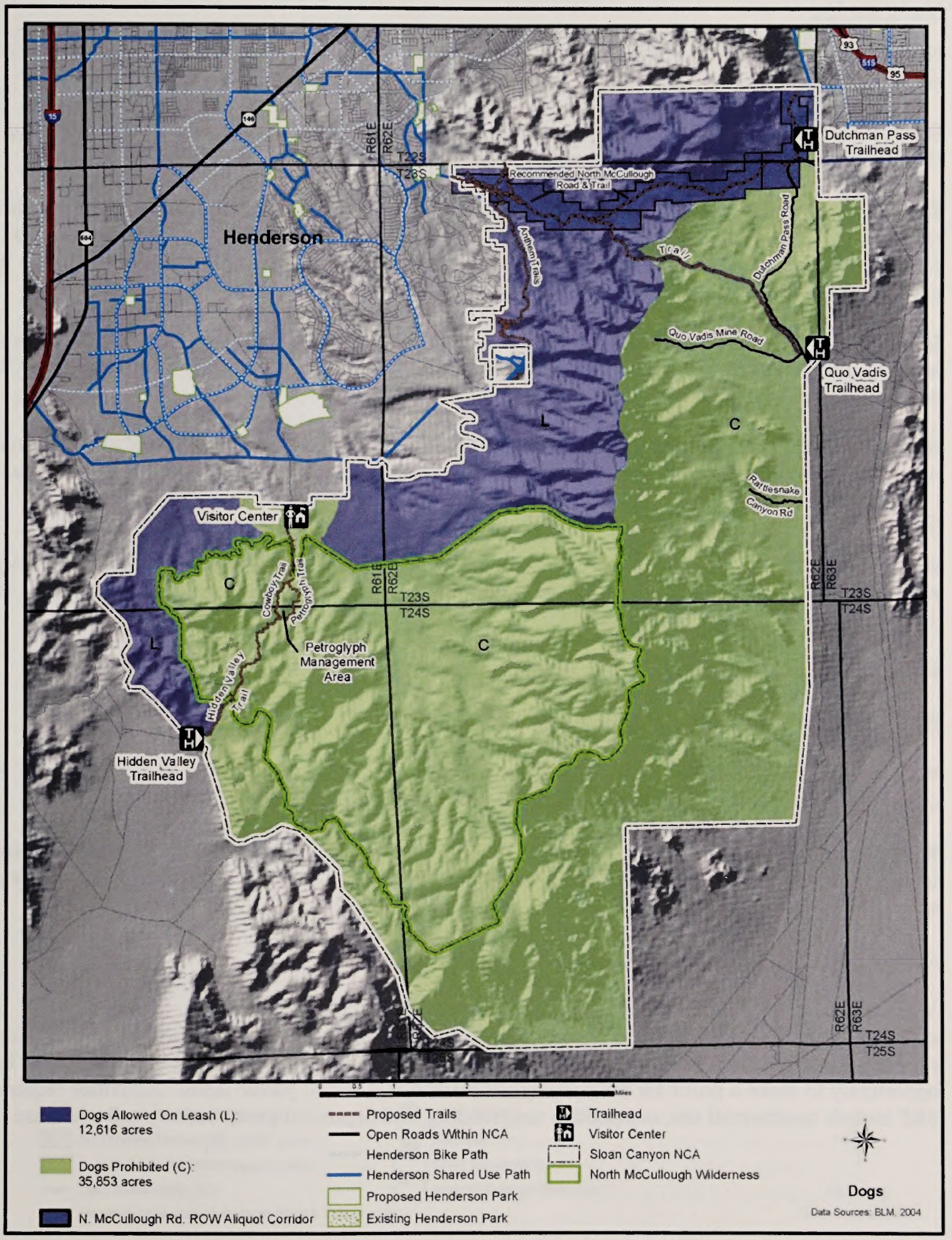
Throughout this plan, the term "OHV" refers to any motorized vehicle capable of operating on roads, trails, or other areas that are not maintained. These vehicles are not required to be street- registered and include motorcycles, all-terrain vehicles (ATV), dune buggies, and four-wheel drive vehicles.

REC 13: The entire NCA would be closed to OHV use.

Dogs

REC 14: Leashed dogs would be allowed within designated areas of the NCA and, within those areas, must remain on trails once they are designed and constructed. Dogs are prohibited in the remainder of the NCA (Figure 2.5).

Figure 2.5. Dogs



REC 15: Dog feces must immediately be picked up and packed out. Low-profile, natural-colored dispensers for dog waste bags would be placed and maintained at trailheads.

Nighttime Use

No camping sites, water, or other amenities would be provided, and campers would have to be self-sufficient.

REC 16: Primitive, dispersed camping would be allowed in the areas shown on the Camping Map (Figure 2.6). In addition, no camping would be allowed within a 1/4-mile radius of water sources.

REC 17: Campfires would be allowed at camping sites in fire pans or with fire blankets; no campfire rings allowed. All fuels must be packed in and packed out. No natural fuels in the NCA could be used for campfires. Fire waste products must be packed out of the NCA. BLM would encourage the use of portable gas, jellied petroleum, or pressurized liquid fuel stoves for preparing meals.

REC 18: The Petroglyph Management Area would be designated for Day Use Only, with fires, camping, and nighttime use prohibited. Exceptions may be allowed only under special circumstances and with the approval of the Sloan Canyon NCA manager.

REC 19: Permits for overnight parking to support activities such as camping and night hiking would be required and would be issued in accordance with NCA policy, which would be developed in the future.

Other Recreation Use

REC 20: Bouldering and traditional rock climbing (no permanent anchors) would be allowed throughout the NCA, including the Wilderness, except in the Petroglyph Management Area and its northern access and in identified sensitive resource areas.

REC 21: Rockhounding would be prohibited within the NCA.

REC 22: Geocaching would be prohibited within the NCA.

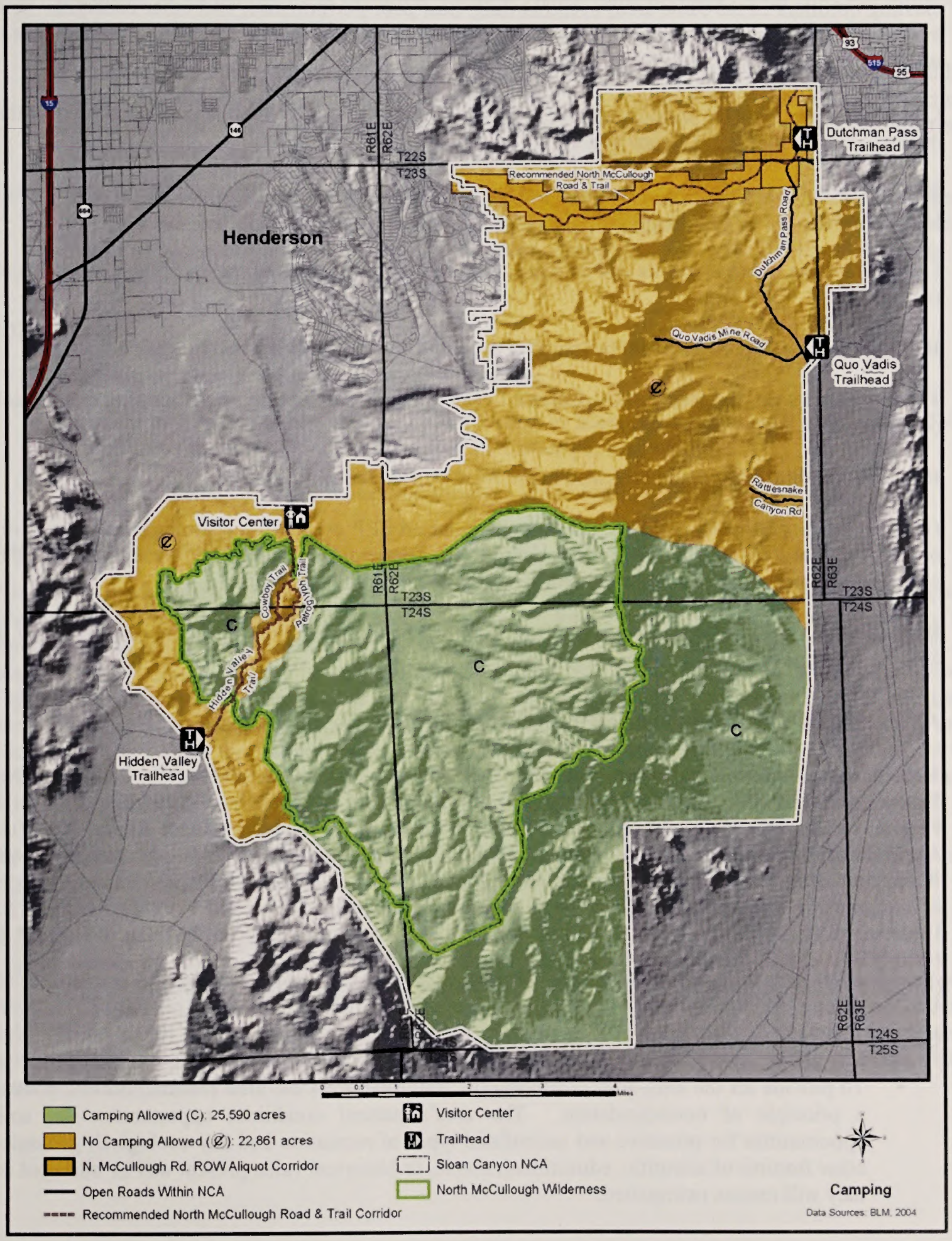
REC 23: All forms of recreational target shooting, including but not limited to firearms, bows, crossbows, and paintball guns, would be prohibited throughout the NCA.

REC 24: Hunting would be prohibited in the Petroglyph Management Area, but hunting activities, including the use of hunting dogs, would be allowed within the remainder of the NCA in conformance with State of Nevada laws and regulations.

Special Recreational Permits

Various recreational uses that could occur within the NCA require an SRP. SRPs would be issued consistent with the purposes of the NCA and Wilderness to disperse visitor use, protect natural resources, provide for the health and safety of visitors, and provide a fair return to the Government for the opportunity to make a profit for the commercial recreational use of public lands. Activities requiring an SRP include commercial use, competitive use, vending, and organized group activity and event use.

Figure 2.6. Camping



SRPs would be issued at the discretion of the Las Vegas Field Office Authorizing Officer, who may at any time and without prior notice choose not to issue permits for certain activities or use areas. Such decisions could be based on a variety of factors, such as planning decisions, potential resource impacts, existing outfitters in the same area, overcrowding, past poor performance, and other concerns. Ongoing evaluations of the number, appropriateness, and impacts of SRPs would be conducted, and issuance limits would be considered based on these evaluations.

Commercial use involves an individual or organizations which provide recreational opportunities that are business-related or involve financial gain.

REC 25: Hunting outfitters and guides would be required to obtain an SRP through the Las Vegas Field Office Authorizing Officer to operate within the NCA.

Competitive use refers to events and activities that include an element of competition, such as a running race.

REC 26: Competitive SRPs could be issued in the NCA outside the Wilderness.

Vending permits are temporary authorizations to sell goods or services on public lands and are usually in conjunction with a recreation activity.

REC 27: Vending SRPs could be issued in the NCA outside the Wilderness.

Organized Group Activity and Event Use may require an SRP even if not commercial or competitive in nature. The Las Vegas Field Office Authorizing Officer determines when an SRP would be needed based on resource concerns, user conflicts, public health and safety, and other factors.

REC 28: All organized groups would be required to obtain an SRP on a case-by-case basis for group activities outside the Petroglyph Management Area.

2.4.3 North McCullough Wilderness

The Proposed Action is consistent with the Clark County Conservation of Public Lands and Natural Resources Act of 2002 (the Clark County Act), the Wilderness Act of 1964, Grazing Guidelines (House Report No. 101-405, Appendix A), and Wildlife Management Guidelines (House Report No. 101-405, Appendix B). It is also consistent with 43 CFR 6300, BLM Manuals 8560 (*Management of Designated Wilderness Areas*) and 8561 (*Wilderness Management Plans*), BLM Handbook H-8560-1 (*Management of Designated Wilderness Areas*), *Las Vegas Resource Management Plan* (BLM 1998a), Memorandum of Understanding (MOU) between BLM and the Nevada Department of Wildlife (NDOW) (BLM MOU 6300-NV930-0402, Supplement 9), and the *Clark County Multiple Species Habitat Conservation Plan* (MSHCP) (Clark County Department of Comprehensive Planning [CCDCP], 2000).

Goals

- To provide for the long-term protection and preservation of the area's wilderness character under a principle of nondegradation. The area's natural condition, opportunities for solitude, opportunities for primitive and unconfined types of recreation and any ecological, geological, or other features of scientific, educational, scenic, or historical value present will be managed so that they will remain unimpaired.

- To manage the wilderness area for the use and enjoyment of visitors in a manner that will leave the area unimpaired for future use and enjoyment as wilderness. The wilderness resource will be dominant in all management decisions where a choice must be made between preservation of wilderness character and visitor use.
- To manage the area using the minimum tool, equipment, or structure necessary to successfully, safely, and economically accomplish the objective. The chosen tool, equipment, or structure should be the one that least degrades wilderness values temporarily or permanently. Management will seek to preserve spontaneity of use and as much freedom from regulations as possible.
- To manage nonconforming but accepted uses permitted by the Wilderness Act and subsequent laws in a manner that will prevent unnecessary or undue degradation of the area's wilderness character. Nonconforming uses are the exception rather than the rule, therefore emphasis is placed on maintaining wilderness character.

Objectives

- Maintain or improve solitude within the Wilderness.
- Maintain or improve naturalness in the Wilderness to achieve a standard of No Known Surface Disturbances and stable or decreasing non-native plant populations.
- Provide a diversity of opportunities for primitive and unconfined recreation.

Management Direction

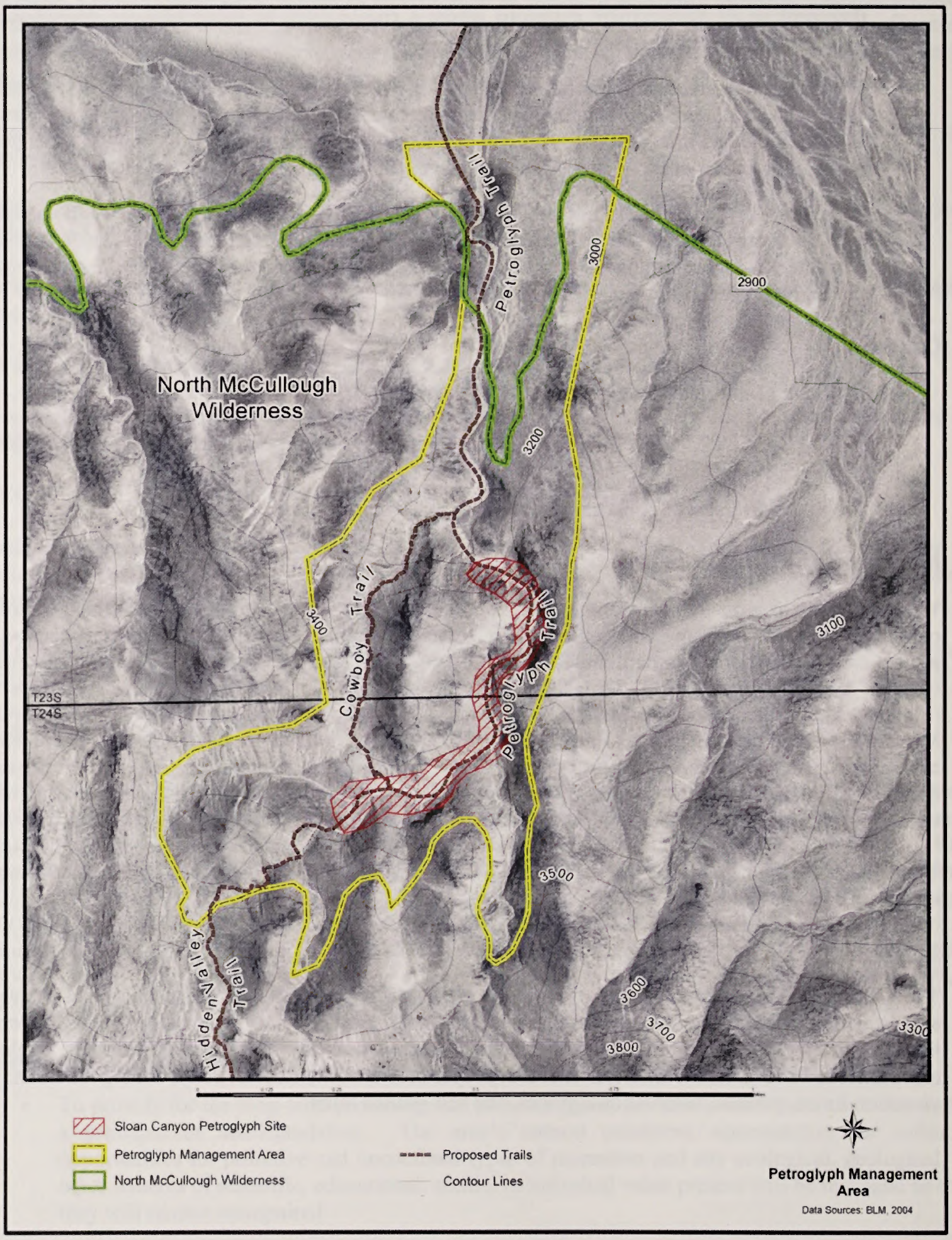
Wilderness management actions provide opportunities for primitive and unconfined recreation opportunities, such as hiking and equestrian use, while providing a level of management necessary to protect sensitive resources and wilderness characteristics. Because the North McCullough Wilderness is close to the Las Vegas Valley, its management, including that of the Petroglyph Management Area (Figure 2.7), is intended to be flexible and responsive as use amounts and patterns are established. Monitoring would be used to assess and establish the Wilderness' baseline conditions and document any changes to them. Once the resource baselines are determined, a system such as LAC could be used to establish thresholds for future actions. Visitation could be monitored using techniques such as contacts with visitors, social surveys conducted at Wilderness access points, and trailhead register data.

The Wilderness Management Plan, Appendix C, contains additional guidance to implement the actions selected as part of this PRMP.

Visitation

The Wilderness Management Plan, Appendix C, establishes visitor numbers, group size, and seasonal and area limits so that wilderness characteristics, including solitude, are not impacted beyond an acceptable limit. Some or all of the following management techniques could be used to maintain wilderness characteristics and protect resources: number people at one time, size of party, timing of visits, daily visitation limits, permits, reservations, guides, and self-guided tours.

Figure 2.7. Petroglyph Management Area



WLD 1: Wilderness characteristics would be maintained at or below established thresholds and limits.

WLD 2: To minimize impacts to wilderness characteristics and natural resources of the area, visitation within the Petroglyph Management Area would be limited, although different visitation thresholds would be established for the remainder of the Wilderness.

WLD 3: If through monitoring it is found necessary, the visitation thresholds limits could be adjusted.

Petroglyph Management Area Visitation

Once residential development on the western side of the NCA is complete, the Sloan Canyon Petroglyph Site will be just a short distance from a large urban population. To manage the potential high number of visitors, to protect the sensitive cultural and natural resources, and to protect wilderness characteristics, detailed management actions were developed. These actions would be implemented once adequate NCA infrastructure is in place.

WLD 4: Visitors to the Petroglyph Management Area during periods of high use, such as weekends and holidays, must join a BLM-sponsored tour. No more than one guided group of no more than 20 people would be allowed in the Petroglyph Management Area at one time. With prior reservations, organized groups of 10 to 35 people would be allowed to visit the Petroglyph Management Area, accompanied by a BLM-sponsored guide.

WLD 5: During periods of lower use (such as weekdays), visitors may go to the Petroglyph Management Area unaccompanied by a BLM-sponsored guide if they obtain a permit. Self-guided tour permits could be issued from the visitor center at the north entrance to Sloan Canyon or from a roving ranger or at the Hidden Valley Trailhead. A total of no more than 25 permits per hour would be issued for self-guided tours.

When obtaining a permit, all nonguided canyon visitors would experience an interpretive presentation on appropriate visitor use and site etiquette at cultural resources sites and within wilderness. At the visitor center, an interpretive presentation could include a video or a static display; but at the Hidden Valley Trailhead or in backcountry locations, it would likely be an informal presentation at the time of permitting, or brochures and kiosk information.

WLD 6: Access to and use of the Petroglyph Mangement Area would be confined to the canyon bottom and a limited number of proposed trails.

WLD 7: The main access to the Petroglyph Management Area would be controlled through a visitor center located near the NCA boundary at the northern end of the Sloan Canyon wash. Rangers and other BLM staff or designated personnel could patrol the Petroglyph Management Area for visitors entering from points other than the visitor center and would either deny access based on visitation levels or issue a visitation permit.

WLD 8: Use of the Petroglyph Management Area would be limited to the visitor center's operational hours, which would be determined by BLM before the center is opened.

Hiking and Equestrian Use

WLD 9: Cross-country hiking would be allowed throughout the Wilderness, except for the Petroglyph Management area and it's north access, where hikers must stay on designated trails.

WLD 10: The entire Wilderness would be available for cross-county equestrian use, except for the Petroglyph Management area and it's north access.

WLD 11: Horse feed and hay must be certified weed-free to prevent the spread of noxious and invasive weeds.

WLD 12: Watering of equestrian and/or pack animals at waterlife water developments is prohibited.

Trails

To minimize resource impacts, trails from both the north and south entrances would be designated and constructed (Figure 2.8). No developments would be made or offered on the Petroglyph Trail at the rockfall site.

WLD 13: In the Wilderness, there would be three trail options: the traditional hike in Sloan Canyon wash (Petroglyph Trail), a newly constructed trail which forks off the traditional wash hike and avoids the rockfall portion of the wash (Cowboy Trail), and access to the Petroglyph Management Area from the south via a designated 1.5-mile trail from the Hidden Valley Trailhead.

WLD 14: Wilderness trails would be added to the system as necessary for the protection of resources and wilderness character.

WLD 15: Site-specific resource conditions would be considered when selecting trail locations and designing trail features.

WLD 16: The development of developments (such as trails) near wildlife water (guzzlers) would be prohibited within a 1/4-mile radius of the guzzler.

WLD 17: Minimal permanent developments would be allowed only for the purposes of resource protection measures, enhancement of wilderness values, and erosion control and only after conducting a minimum requirement/minimum tool analysis.

WLD 18: New social trails resulting in resource damage within the Wilderness (not desired for future designation, modification, or use) would be restored after completing a minimum requirement/minimum tool analysis. Low-profile, wilderness-appropriate "Closed" signs would be installed on social trails. Associated recreation use would be dispersed to other locations using area closures, barriers, and visitor information. The visible portions of these social trails would be restored using nonmechanized means and native vegetation. The nonvisible portions of the social trails would be left to restore naturally.

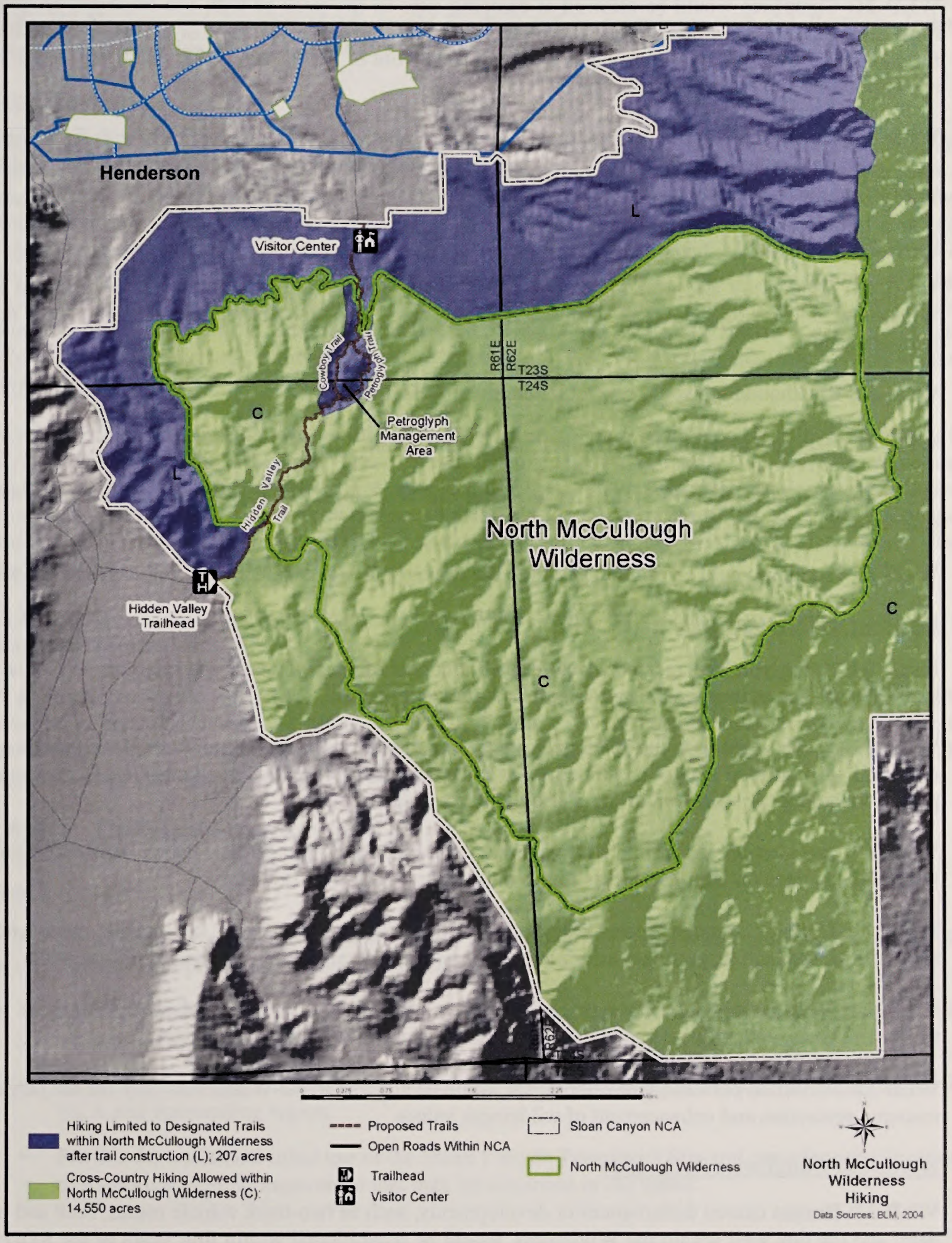
Dogs

WLD 19: No dogs would be allowed in the Wilderness.

Nighttime Use

WLD 20: Primitive, dispersed camping would be allowed within the Wilderness, except in the Petroglyph Management Area. No camping sites, water, or other amenities would be provided, and

Figure 2.8. North McCullough Wilderness Hiking



campers would have to be self-sufficient. In addition, no camping would be allowed within a 1/4-mile radius of water sources.

WLD 21: Campfires would be allowed at camping sites in fire pans or with fire blankets; no campfire rings allowed. All fuels must be packed in and packed out. No natural fuels in the NCA could be used for campfires. Campfire waste products must be packed out of the NCA. BLM would encourage of the use of portable stoves for preparing meals.

WLD 22: The Petroglyph Management Area would be designated for Day Use Only, with fires, camping, and nighttime use prohibited. Exceptions may be allowed only under special circumstances and with the approval of the Sloan Canyon NCA manager.

Other Recreation Use

WLD 23: Bouldering and traditional rock climbing (no permanent anchors) would be allowed in the Wilderness outside of identified sensitive resource areas, the Petroglyph Management Area and its northern access.

WLD 24: Rockhounding would be prohibited in the Wilderness.

WLD 25: Geocaching would be prohibited in the Wilderness.

WLD 26: Commercial SRPs would be issued in the Wilderness on a case-by-case basis, however no competitive or vending SRPs would be issued.

WLD 27: Hunting would be prohibited within the Petroglyph Management Area and it's northern access.

Signage and Developments

Inside the Petroglyph Management Area, limited amounts of small signage and interpretive media could be located for the purposes of resource and wilderness protection.

WLD 28: Access signage in the Wilderness indicating that access to the Petroglyph Management Area is restricted to permitted access or guided tours only beyond a certain point would be placed at various places, including the south end of the Petroglyph Management Area.

WLD 29: Interpretive and administrative signs (e.g., trailhead signage and visitor registers) would, in general, be located on high-use access routes outside the Wilderness boundary.

WLD 30: Trailhead signage located outside the Wilderness would consist of low-profile, natural-colored signs and would include pertinent information such as route details, maps, and visitor information.

WLD 31: Wilderness boundary signage would be installed at all known and potential access routes, visitor use areas, and at line-of-sight distances along the entire Wilderness boundary.

WLD 32: Minimum permanent developments would be allowed in the Wilderness only for the purpose of resource protection and enhancement of wilderness values.

Wilderness Disturbance Restoration

WLD 33: Human caused disturbances or developments, such as two-track vehicle routes, rock and mortar dam, and the dug well within the Wilderness, would be rehabilitated within four years of the ROD using appropriate resources determined through a minimum requirement/minimum tool analysis for each

rehabilitation project. Any new vandalism and illegal dumping within the Wilderness would be removed or repaired using the same process.

WLD 34: Noxious and invasive weeds would be managed in accordance with the *Partners Against Weeds—An Action Plan for BLM* (BLM 1996) initiative for weeds.

Aircraft Overflights

BLM does not have administrative jurisdiction of the airspace above the Sloan Canyon NCA and Wilderness. The use of aircraft is only regulated by BLM if an aircraft lands or if anything/anyone is picked up for dropped off by means of an aircraft. The Sloan Canyon NCA Act specifically allows military overflights of the Wilderness. Flight testing and evaluation, designation or creation of new units of special use airspace, or establishment of training routes are not precluded. The highest percentage of low-level overflights of the Wilderness is from scenic tours originating from local area airports, although private flights from Henderson Executive Airport, located several miles from the northern Wilderness boundary, also contribute. In addition, commercial flights from McCarran International Airport pass directly over the Wilderness, although they tend to be localized to the western edge and at an altitude of more than 4,000 feet.

Overflights conducted by BLM within the NCA or wilderness would be designed to minimize impacts to NCA or wilderness characteristics. These overflights would be primarily for NCA or wilderness monitoring purposes, (e.g., checking for new disturbances and unauthorized vehicle use), however helicopters could be used to deliver personnel or materials for the purposes of the NCA in conformance with the Sloan Canyon NCA Act; Wilderness Act; and North McCullough Wilderness Management Plan, Appendix C.

WLD 35: All BLM-administered Wilderness overflights would be conducted to minimize impacts to wilderness characteristics.

WLD 36: Access to the North McCullough Slickrock Catchment 1 (Maintenance Project 4916) would be managed in accordance with the MOU with NDOW and an environmental assessment written for its installment. Significant repairs to the catchment would include notifying BLM, and the analyzing of the proposed action through a minimum tool analysis.

2.4.4 Cultural Resources

Goals

- Identify and protect cultural resources and ensure that representative resources are available for the benefit of present and future generations.
- Reduce imminent threats from natural or human-caused deterioration, or potential conflict with other resource uses.
- Actively pursue opportunities for scientific research to understand and interpret human use of the NCA and surrounding region.
- Provide for traditional tribal use of the Sloan Canyon Petroglyph Site and consider other locations of traditional cultural importance that may be identified in the future.

Objectives

- Develop educational and interpretive outreach programs to help prevent cultural resources from being disturbed or damaged.
- Interpret the history and prehistory of the NCA to help instill an appreciation for past and current cultures and the values that living cultures associate with the resources of the NCA.
- Develop cooperative efforts with educational institutions, students, tribes, and others for scientific studies, educational opportunities, and enhanced management of the NCA's cultural resources.
- Continue good working relationships with interested Native American tribes.

Management Direction

All proposed actions within the NCA would be subject to compliance with Section 106 of the National Historic Preservation Act in accordance with the Nevada BLM/State Historic Preservation Office (SHPO) Protocol, Archaeological Resource Protection Act, Native American Graves Protection and Repatriation Act, and other appropriate mandates. In accordance with the American Indian Religious Freedom Act, BLM would ensure that policies enacted under this plan would not inadvertently impair the ability of Native Americans to access the Sloan Canyon Petroglyph Site for traditional cultural purposes. Management actions related to the cultural resource sites within the Wilderness would be within the limits prescribed by the Wilderness Management Plan (Appendix C), and the Clark County Act, Title II ("Wilderness Areas").

The Cultural Resources Management Plan in Appendix D contains key elements for management of cultural resources during the first stage of implementation of the Proposed Plan. The key elements are—

- A cultural context and relevant research questions for archaeological and ethnographic work that may be conducted in early stages of developing the NCA.
- A treatment protocol to be implemented in the event that Native American human remains are discovered.
- A monitoring plan to establish baseline data and track effects on cultural resources as public use of the NCA grows.

Cultural resources within the NCA would be managed based on use categories, as defined below.

Scientific Use—This category applies to any cultural property determined to be available for consideration as the subject of scientific or historical study at the present time, using currently available research techniques. Study includes methods that would result in the property's physical alteration or destruction. This category applies almost entirely to prehistoric and historic archaeological properties, where the method of use is generally archaeological excavation, controlled surface collection, and/or controlled recordation (data recovery). Recommendations to allocate individual properties to this use must be based on documentation of the kinds of data the property is thought to contain and the data's importance for pursuing specified research topics. Properties in this category need not be conserved in the face of a research or data recovery (mitigation) proposal that would make adequate and appropriate use of the property's research importance.

Public Use—This category may be applied to any cultural property found to be appropriate for use as an interpretive exhibit in place, or for related educational and recreational uses by members of the general public.

Traditional Use—This category is to be applied to any cultural resource known to be perceived by a specified social and/or cultural group as important in maintaining the cultural identity, heritage, or well-being of the group. Cultural properties assigned to this category are to be managed in ways that recognize the importance ascribed to them and seek to accommodate their continuing traditional use.

Conservation for Future Use—This category is reserved for any unusual cultural property which, because of scarcity, a research potential that surpasses the current state-of-the-art, singular historic importance, cultural importance, architectural interest, or comparable reasons, is not currently available for consideration as the subject of scientific or historical study that would result in its physical alteration. A cultural property included in this category is deemed worthy of segregation from all other land or resource uses, including cultural resource uses, that would threaten the maintenance of its present condition or setting, as pertinent, and would remain in this use category until specified provisions are met in the future.

CR 1: All physical contact with petroglyphs, such as touching, chalking, and making impressions through rubbings or casting would be prohibited except for traditional cultural purposes with a special use permit.

CR 2: Scientific research may be allowed under permit.

CR 3: Approximately half the rockshelters in the NCA would be assigned to the conservation for future use and traditional use management categories. The remainder of rockshelters would be assigned to the scientific, public, and traditional use categories. Rock art locales (other than the Sloan Canyon Petroglyph Site) would follow a similar pattern, with half assigned to the conservation for future use and traditional use management categories and the remainder assigned to the conservation for future use, scientific use, and traditional use categories.

CR 4: Approximately half of other prehistoric and historic sites would be assigned to conservation for future use and traditional use, and the remaining sites would be assigned to scientific, public, and traditional use management categories. Ineligible sites and isolates would be assigned to the scientific use management categories.

CR 5: The Sloan Canyon Petroglyph Site would be assigned to the traditional, conservation, public, and scientific use categories.

CR 6: In areas identified as having a medium to high potential for cultural resource sites (Duke et al. 2004), a Class III cultural resources inventory (100 percent) would be required prior to any land disturbing undertaking.

CR 7: For areas with a low potential density for cultural resource sites, a reconnaissance-level inventory would be required prior to land disturbing activities. Areas with a low potential would be considered for elimination of inventory requirements when sufficient information is available.

CR 8: Maximum fire suppression would be utilized in the Petroglyph Management Area and Wilderness areas with a high or medium potential for cultural resources would utilize flexible fire suppression, with a cultural resource advisor assigned to the fire.

CR 9: In areas with low potential for cultural resources, fire control would be discretionary, and actions would be in conformance with the *Fire Management Plan* (BLM 2004b) and Wilderness limitations. A resource advisor is required for all fires within the NCA.

2.4.5 Special Designations—Areas of Critical Environmental Concern

Goal

Protect areas with relevant and important cultural, natural, or geological values.

Objective

Develop management prescriptions to protect the important values of the NCA.

Management Direction

The Sloan Canyon Petroglyph Site would be managed to ensure regulatory compliance in accordance with the management prescriptions established through this RMP. These prescriptions supersede the prior area of critical environmental concern (ACEC) designations, providing a greater degree of protection and management.

ACEC 1: The Sloan Rock Art District ACEC designation would be eliminated.

2.4.6 Visual Resources

Goal

Manage all activities in a manner that conserves, protects, and enhances the NCA's scenic resources.

Objective

Manage activities within the NCA to adhere to the Visual Resource Management (VRM) class objectives.

Management Direction

VR 1: Signage, structures, and facilities would be designed in accordance with applicable VRM objectives.

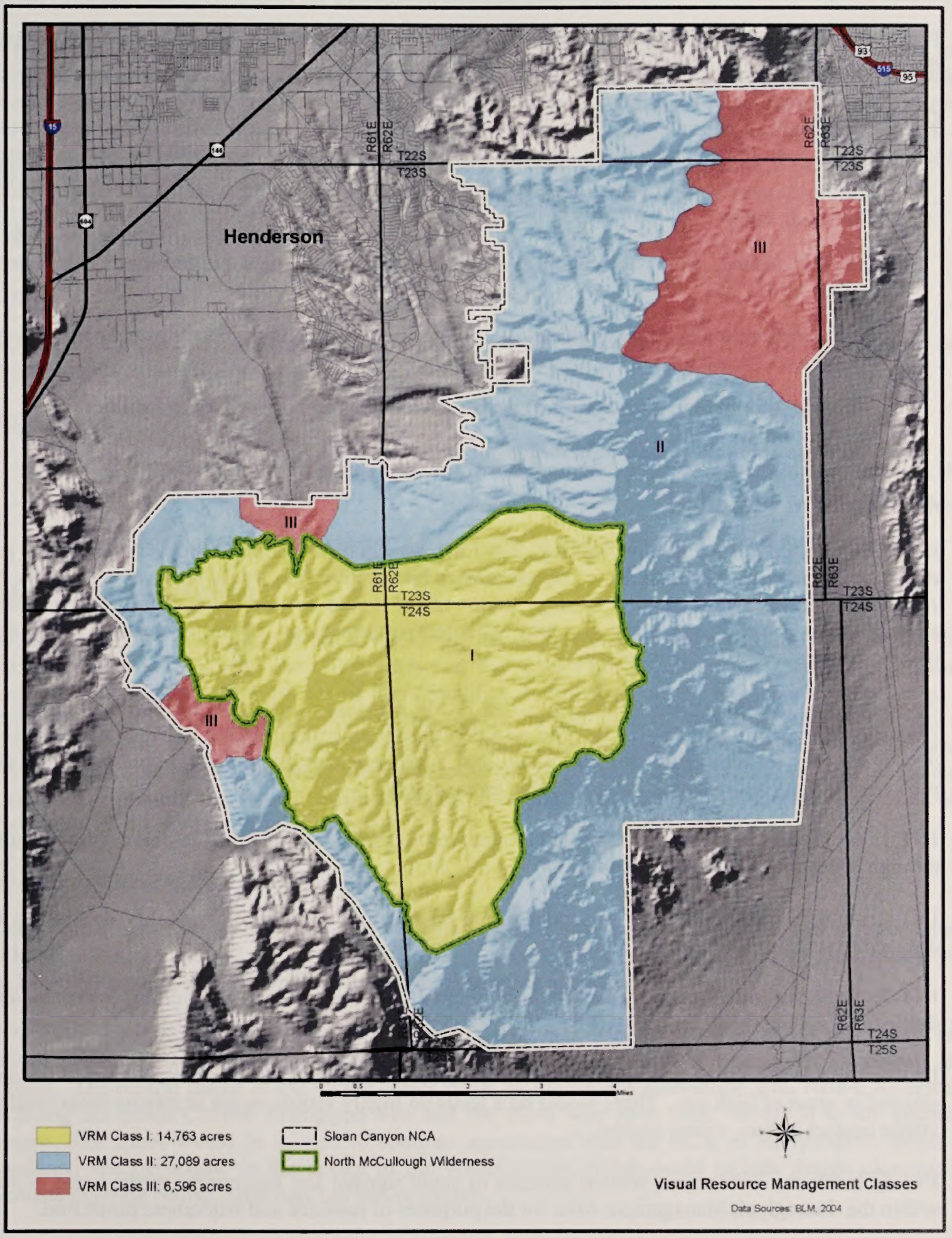
VR 2: VRM classes would be based on the Visual Resource Inventory, as described in Appendix E, including designating the North McCullough Wilderness as VRM Class I.

VR 3: VRM classes would be designated as shown on the VRM Classes Map (Figure 2.9).

VR 4: The following VRM class definitions would be used:

- **VRM I**—Preserve the existing character of the landscape. Authorized actions may not modify the existing landscape or attract the attention of casual viewers.
- **VRM II**—Retain the existing character of the landscape. The level of change to the characteristic landscape should be low and may not attract the attention of casual viewers.
- **VRM III**—Partially retain the existing character of the landscape. The level of change to the characteristic landscape should be moderate and may minimally attract the attention of the casual viewer.

Figure 2.9. Visual Resource Management Classes



2.4.7 Interpretation

Goal

Provide opportunities for users, both onsite and offsite, to develop an appreciation of the NCA's resources through informational and inspiring interpretative experiences.

Objectives

- Provide a variety of opportunities for education, accurate information, and interpretation that meets the user's needs (e.g., tours, kiosks, brochures, virtual tours, website, libraries, community outreach, etc.).
- Provide visitors with information on traditional uses that would be developed with interested tribes.
- Provide interpretation that promotes stewardship behavior in users so they would act in a way that minimizes impacts to the NCA's resources.
- Provide information, guidance, and regulations for visits and orientation to facilities.
- Increase public awareness of management goals for the NCA.

Management Direction

Based, in part, on the Interpretive Strategy and Environmental Education Strategy developed as part of this planning process (Appendix F), a Comprehensive Interpretive Plan would be developed for the NCA. As encouraged in the Interpretive Strategy, partnerships would be developed with tribes, cooperating agencies, not-for-profit organizations, and volunteer organizations when conducting interpretation, outreach, education, and facility planning.

As required by the Sloan Canyon NCA Act, this PRMP contains a Litter Cleanup Plan and Public Lands Awareness Campaign (Appendix G). The plan describes a program that could include concepts such as developing partnerships with federal, State, and local agencies; increasing volunteer involvement; preparing educational material; and increasing enforcement.

INT 1: A program would be implemented to remove litter from the NCA and to prevent future dumping through education and enforcement.

INT 2: A full range of interpretive media would be provided, with media visibility decreasing as the distance from developed areas increases.

INT 3: Stationary interpretive media would be limited to specific areas identified for interpretation and designed to reduce visual impacts.

INT 4: Outside the Wilderness, the use of low-profile, visually unobtrusive interpretive media would be allowed in areas of high use. There would be a focus on highly visible media at staging areas (trailheads, visitor contact station, visitor center).

INT 5: Inside the Wilderness, limited amounts of small signage and interpretive media could be located within the Petroglyph Management Area for the purposes of resource and wilderness protection.

INT 6: Access signage in the Wilderness indicating that access to the Petroglyph Management Area is restricted to permitted access or guided tours only beyond a certain point, would be placed at various points, including the south end of the Petroglyph Management Area.

INT 7: Media, such as virtual tours, would be developed to provide opportunities for education and interpretation at the visitor center for those unable to access the Petroglyph Management Area or other remote areas of the NCA, and for use at times when weather, such as extreme summer heat or other conditions, limit normal access. Such media would serve the dual purpose of reducing impacts to resources and enhancing wilderness experience. In general there would be a focus on the use of interactive virtual interpretation media, such as websites.

2.4.8 Facilities

Goal

Enhance visitor use and experience by providing appropriate facilities compatible with the character and characteristics of the NCA's resources.

Objectives

- Provide appropriate access points with relevant interpretive opportunities, signage, mapping, and information specific to that area.
- Provide appropriate facilities and/or infrastructure to support management of the NCA.

Management Direction

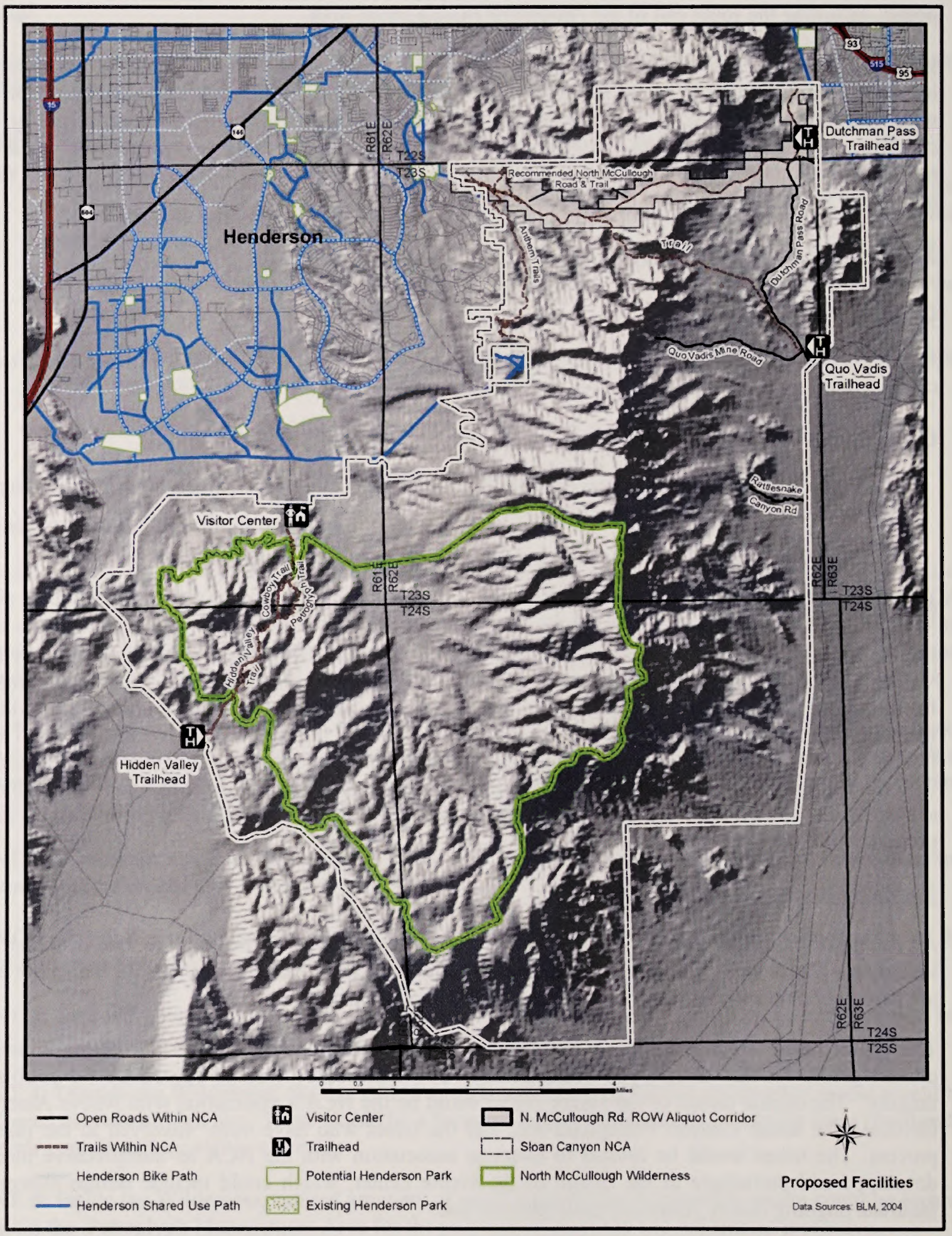
Developed access points into the NCA would include the northern entrance of Sloan Canyon, Hidden Valley Trailhead, Dutchman Pass Trailhead, and the Quo Vadis Trailhead. Figure 2.10, Proposed Facilities Map, depicts the locations of these facilities. Information on the NCA could be provided at facilities located outside the NCA, for example at schools and libraries located throughout the City of Henderson. Additional trails and facilities could be added throughout the NCA, as needed, in accordance with the applicable MEA objectives. The facilities would be planned, designed, and constructed through a systematic process that would evaluate needs, potential uses, and public interest as well as the preparation of an environmental assessment.

Northern Entrance of Sloan Canyon

A conceptual model for a visitor center is presented here for analysis purposes. The total disturbed area, including a 2-acre parking area, was assumed to be 20 acres. The areas and activities for the visitor center are based on input received from the public and cooperating agencies.

The visitor center could provide NCA management with office space, serve as one of the access and control points for the Petroglyph Management Area, and be the base of operations for patrols and rangers. The central theme of the visitor center could be the NCA's association with Native Americans including the Sloan Canyon Petroglyph Site and the tribes who have been involved in the planning process. The tribes would be invited to continue association with the NCA as interpretative media is developed and participate in the design of the visitor center, which could include design elements to facilitate ongoing Native American use and/or events.

Figure 2.10. Proposed Facilities



The visitor center could include offsite space for BLM staff, law enforcement, volunteers, and visiting scholars and researchers, and a visitor permit window or desk. The center could have facilities for maintenance and storage, areas for interpretive use, an outdoor amphitheater, classrooms, research facilities, archival storage, a book store/gift shop, meeting rooms, and concessions.

FAC 1: A visitor center could be constructed near the NCA boundary at the north entrance to Sloan Canyon.

FAC 2: A business plan would be developed for the NCA that would explore income-generating facilities, including space in the visitor center to be leased for food/restaurant facilities and the viability of day rentals of space for meetings or small corporate retreats.

Hidden Valley Trailhead

For analysis purposes, the total disturbed area is assumed to be 10,500 square feet. A parking lot, an interpretive kiosk, and a vault toilet would be constructed inside the NCA boundary.

FAC 3: A trailhead could be constructed near the NCA boundary at Hidden Valley.

Dutchman Pass Trailhead

A parking lot, an equestrian staging area, an interpretive kiosk, and a vault toilet would be constructed near the northeastern boundary of the NCA at Dutchman Pass. For analysis purposes, the total disturbed area was assumed to be 22,500 square feet.

FAC 4: A trailhead could be constructed at Dutchman Pass Trailhead.

Quo Vadis Trailhead

A 1/2-acre parking lot would be constructed, with an interpretive kiosk and vault toilet.

FAC 5: A trailhead could be constructed at Quo Vadis.

2.4.9 Lands and Realty

Goal

Manage land and realty actions within the NCA in accordance with the Sloan Canyon NCA Act and the Clark County Act, Title II ("Wilderness Areas").

Objective

Allow only development and establishment of new interests within the NCA that are consistent with the intent of the Sloan Canyon NCA Act.

Management Direction

In accordance with the Sloan Canyon NCA Act, all existing rights at the time of passage of the Clark County Act (November 6, 2002) are recognized. The North McCullough Wilderness, which includes the Petroglyph Management Area, is an exclusion area for all types of ROWs.

LAND 1: Existing communication ROWs may be renewed at the end of their term in accordance with the *Black Mountain Communication Site Plan* (BLM 1999) and current regulations, and may be updated or modified to meet the intent of the Sloan Canyon NCA Act. No new communication sites would be authorized under the Sloan Canyon NCA Act.

LAND 2: Other valid existing ROW grants may also be renewed at the end of the term and modified to meet the intent of the Sloan Canyon NCA Act and current regulations. If a subleasing right, such as one for fiber optics, existed as of November 6, 2002, that right continues. New ROWs or amendments to existing ROWs would be considered on a case-by-case basis and authorized only if they serve the purposes of the NCA.

LAND 3: Outside the Wilderness, applications for new linear or site-type ROWs, or any amendments to existing ROWs, would be considered on a case-by-case basis within the NCA if the action furthers the purpose of the NCA in Section 602 of the Sloan Canyon NCA Act (Figure 2.11).

Evaluation criteria could include, in part—

- Direct benefit to the NCA, such as utilities to serve NCA facilities.
- Maintaining or decreasing visual contrast.
- Reduction of disturbed areas.
- Improvement in road/ROW alignments to minimize resource impacts.

LAND 4: Commercial filming permits could be allowed in the NCA, outside of Wilderness, with location, timing, vehicle, and crew size restrictions. Film permits would be limited to proposed trails and trailheads and would not be allowed in the Petroglyph Management Area. Filming would be prohibited on weekends and federal holidays. In addition vehicles associated with the permit may not occupy more than half of the parking area capacity and would not be allowed to create new ground disturbances. The

crew size would be limited to a maximum of 15 people per permit for still photography and a maximum of 15 people per permit for motion photography:

LAND 5 : Special Use Permits (2920 Permits) would be allowed if they meet the intent of the Sloan Canyon NCA Act. Special Use Permits are issued for purposes such as temporary or permanent facilities for commercial purposes and construction equipment storage sites (43 CFR 2920).

2.4.10 Transportation (Registered Motorized Vehicles)

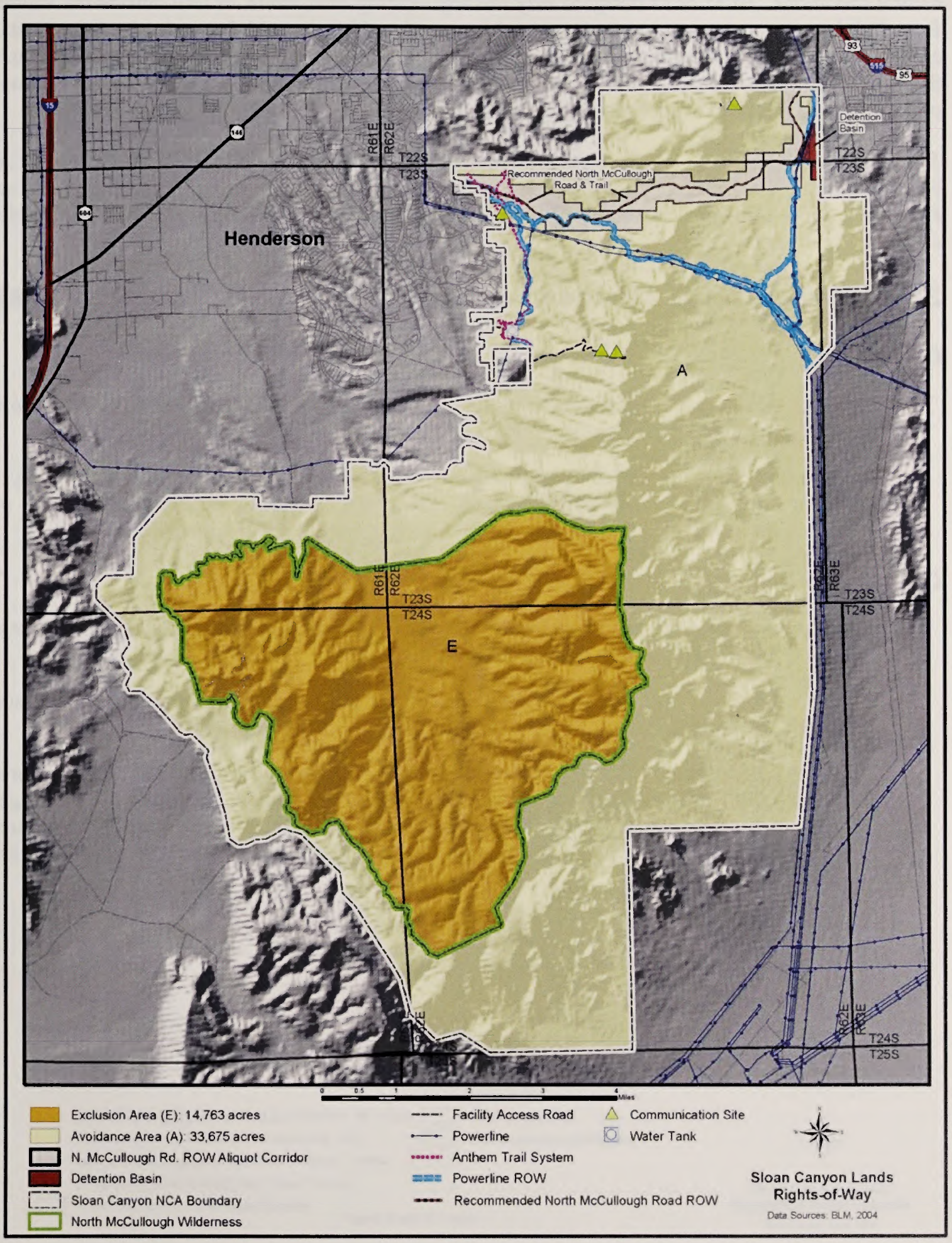
Goal

Provide public and administrative access to the NCA.

Objective

Provide and maintain a system of roads and routes for registered motorized vehicles within the NCA but outside the North McCullough Wilderness.

Figure 2.11. Sloan Canyon Lands Rights-of-Way



Management Direction

All roads and routes not designated for public use could be physically barricaded, signed, or restored to natural conditions. BLM or its designee may use any existing road, route, or trail outside the Wilderness for administrative or emergency purposes. Motorized vehicles could be authorized for installing, maintaining, and reconstructing water development projects outside the Wilderness, including guzzlers, that would enhance the NCA by promoting healthy, viable, and more naturally distributed wildlife populations, subject to existing laws, regulations, policies, plans, or agreements.

The North McCullough Road, Dutchman Pass Road, Quo Vadis Mine Road, and Rattlesnake Canyon Road would be open to the public for registered vehicles as shown in Figure 2.12, Sloan Canyon Roads—Registered Motorized Vehicles Map. All other roads and routes would be closed to the public for registered vehicle use.

2.4.11 Vegetation Management (including Special Status Species)

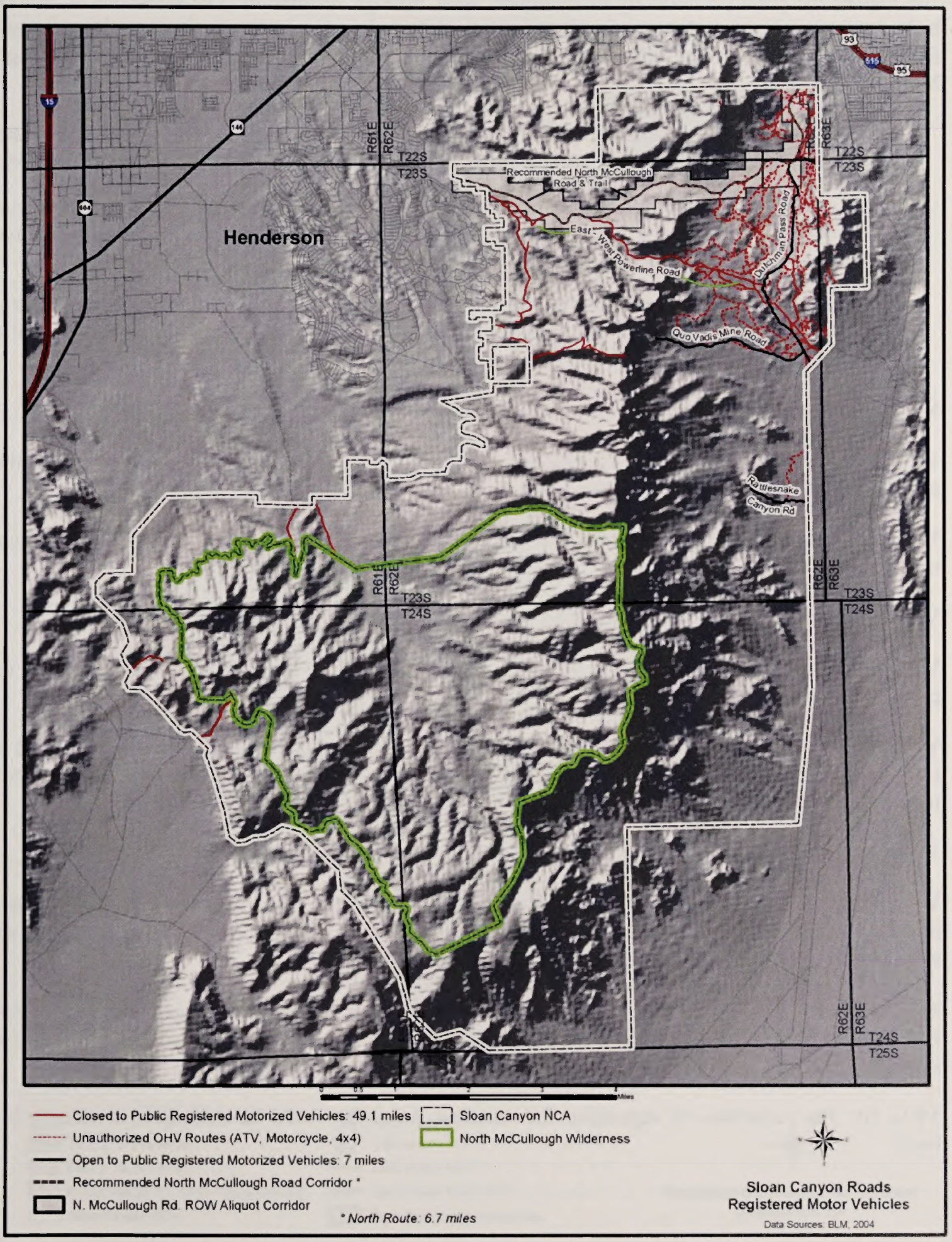
Goals

- Manage the NCA to maintain or improve the condition of native vegetation to achieve a potential natural community when consistent with other goals and objectives for the NCA.
- Establish an integrated weed management program by cooperating with State and county weed programs and building cooperative weed management areas to implement the goals of the *Partners Against Weeds—An Action Plan for the BLM* (BLM 1996) initiative.

Objectives

- Manage to protect priority plant species and habitats, including federally listed, State-sensitive, and MSHCP (CCDCP 2000) species within the NCA.
- Place a priority on the use of native plant species for vegetation restoration and landscaping developed areas.
- Protect the natural condition and biodiversity of the NCA by preventing or limiting the spread of noxious and invasive weeds that displace native vegetation, through integrated weed management principals to detect and eradicate all existing infestations, eliminate new infestations before they begin to spread, and prevent or limit the spread of established weeds into areas containing little or no infestations.
- Prevent the increase of total acres dominated by invasive annual species within the NCA.

Figure 2.12. Sloan Canyon Roads Registered Motorized Vehicles



Management Direction

Vegetation would be managed by restoration zones based on MEAs to promote native plant communities and restore the plant productivity of disturbed areas through restoration. The threshold of disturbance before restoring the natural vegetation community or improving the condition of native plant communities for each zone would be as follows and is shown in Figure 2.13, Vegetation Disturbance Management Map:

- Zone 1 (Primitive MEA)—Conduct restoration if the surface disturbing activity may alter the natural vegetation community processes or if it reduces the viability of local species populations.
- Zone 2 (Semi–Primitive, Non-Motorized MEA)—Conduct restoration if the surface disturbing activity may have a short-term impact on natural vegetation community processes or if it reduces the viability of local species populations.
- Zone 3 (Roaded Natural and Developed MEAs)—Conduct restoration if the surface disturbing activity may have a long-term impact on natural vegetation community processes or if it could have a long-term impact on local species populations.

VEG 1: Manage vegetation restoration by zone, as shown in Figure 2.13.

VEG 2: Restoration projects would take priority in Zones 1 and 2 to restore or improve conditions in native plant communities (Appendix H, Vegetation Restoration Strategy).

VEG 3: Disturbed areas in the North McCullough Wilderness would be restored after completion of a minimum requirement/minimum tool analysis.

VEG 4: Commercial and casual collection of vegetation would be prohibited throughout the NCA.

VEG 5: Sensitive and Special Status Species habitats would be protected to ensure suitable habitat conditions and population viability.

VEG 6: Scientific research and monitoring of Special Status Species would be encouraged. BLM would develop partnerships with organizations such as universities and other educational groups to facilitate research on and monitoring of Special Status Species.

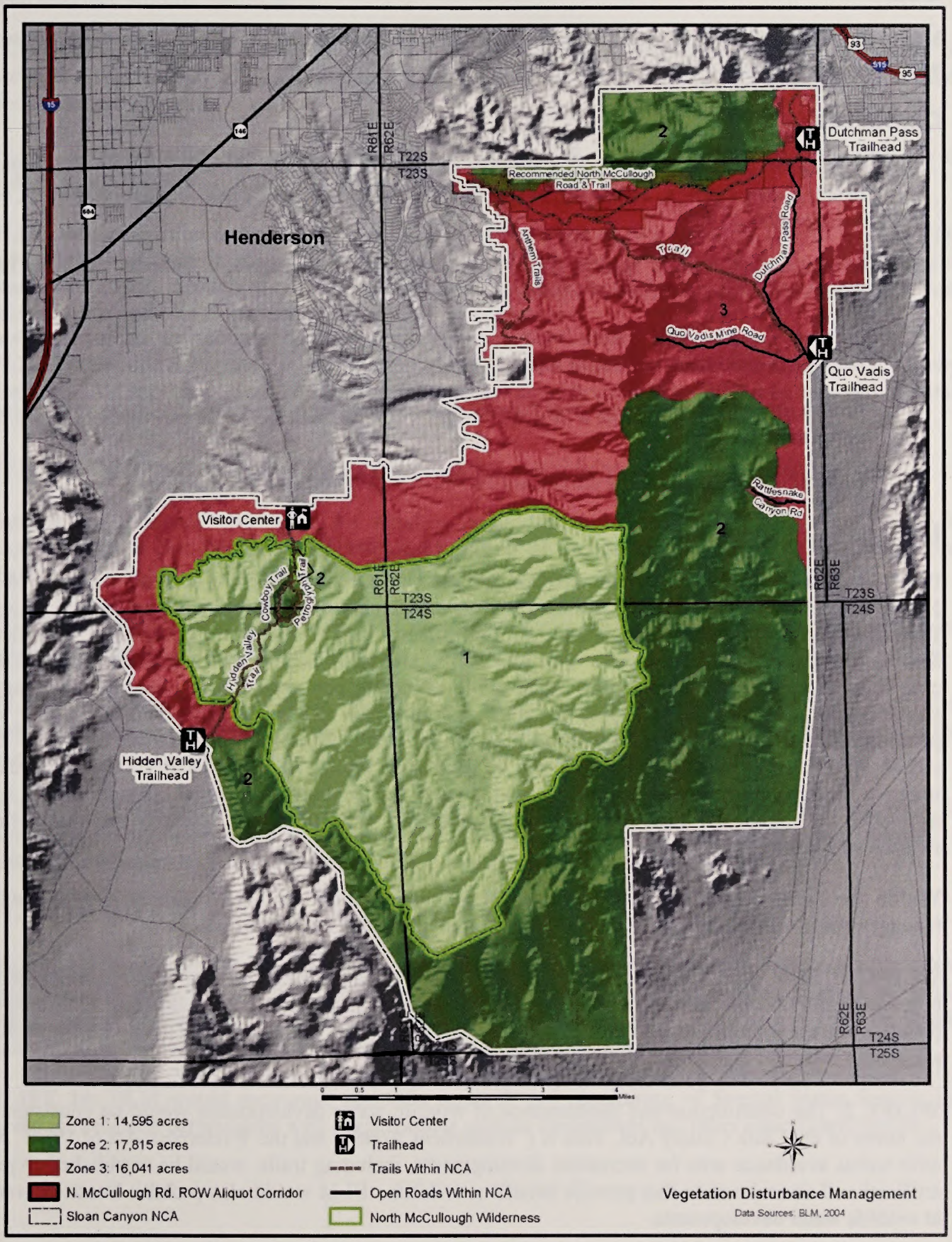
VEG 7: Any developed landscaping would use only plant species native to the NCA.

VEG 8: Sites proposed for disturbance would be evaluated for the presence of Special Status Plant Species. In addition, surface disturbing activities within known locations of federally listed plant species would be avoided, if feasible.

VEG 9: BLM would continue ongoing efforts to survey, monitor, and manage invasive and noxious weeds using integrated weed management principals. This includes working with local organizations, agencies, and landowners to promote education and to assist in managing weeds.

VEG 10: The collection of vegetation for scientific purposes would be authorized on a case-by-case basis.

Figure 2.13. Vegetation Disturbance Management



2.4.12 Wildlife Management (including Special Status Species)

Goal

Maintain and enhance native wildlife resources and provide for biological diversity of wildlife resources while ensuring healthy ecosystems.

Objectives

- Manage to protect Special Status Wildlife Species and habitats in the NCA, including federally listed, State-sensitive, and *MSHCP* species, according to existing law, regulation, policy, and/or agreement.
- Maintain or enhance habitat quality and quantity to adequately support the life history requirements of a diversity of wildlife species.
- Promote healthy and viable wildlife populations through appropriate habitat and species management actions that would lead to providing for ecological integrity within the NCA.
- Protect important migratory bird habitat according to existing law, regulation, policy, and/or agreement.
- Maintain lambing areas and movement corridors for bighorn sheep.

Management Direction

BLM would work cooperatively with NDOW and the U.S. Department of Agriculture Animal and Plant Health Inspection Service/Wildlife Services in the management of wildlife (including Special Status and Sensitive Species, hunting, and trapping), recognizing their respective management jurisdictions. Specifically BLM would coordinate with NDOW in providing habitat for maintenance of population objectives and management activities designed to moderate populations (e.g., hunting, trapping, and transfer). For example, BLM would manage bighorn sheep habitat to promote healthy and viable populations consistent with the *Rangewide Plan for Managing Bighorn Sheep Habitat on Public Lands* (BLM 1998c). BLM would also follow the objectives of the *MSHCP* (CCDCP 2000) to maintain or improve current and potential wildlife habitat toward full ecological potential. In addition BLM has developed a Biological Management Strategy (Appendix I) to guide the research and monitoring of wildlife species found within the NCA.

Within the North McCullough Wilderness, BLM would follow its MOU with NDOW for wildlife management in the Wilderness (BLM 2003c) or other applicable agreement policy.

WLIFE 1: BLM would enhance wilderness values by maintaining existing water developments to promote healthy, viable, and more naturally distributed wildlife populations; constructing additional water developments if appropriate; and protecting or improving springs and seeps consistent with the MOU and applicable laws and regulations.

WLIFE 2: The construction and maintenance of wildlife water developments would be consistent with the intent of the Clark County Act, Title II ("Wilderness Areas") and the Wilderness Act of 1964. A 1/4-mile radius avoidance area for recreation developments, including trails, would be established to protect artificial and natural waters that provide benefit to wildlife. BLM would also prohibit livestock watering at wildlife water developments.

WLIFE 3: BLM would allow animal damage control activities, if necessary, on a temporary basis for the successful reestablishment of native species, for the recovery of decimated populations, and to manage urban interface wildlife conflicts.

WLIFE 4: To better understand the NCA's wildlife, BLM would implement monitoring surveys for appropriate species, and wildlife observation studies would be allowed in the NCA as long as the study does not harass species.

WLIFE 5: Interpretive information designed to mitigate the potential effects of recreation use on wildlife would be developed and distributed within the NCA.

WLIFE 6: Designation and construction of trails, facilities, and ROWs would be limited within known lambing areas of bighorn sheep. Surface disturbing activities would be limited within known lambing areas from January through May. Trail construction would be avoided in areas of known bighorn sheep movement between the North and South McCullough Mountains.

WLIFE 7: Permits for wildlife specimen collection would be issued for scientific purposes on a case-by-case basis. All applicants who intend to collect specimens of listed species would be required to obtain additional permits from NDOW and the United States Fish and Wildlife Service (USFWS).

WLIFE 8: Casual and commercial collection of reptiles would be prohibited throughout the NCA.

Distance and seasonal restrictions for sensitive raptor nesting areas and lambing areas would be determined on a case-by-case basis and could depend on the species involved, natural topographic barriers, and line-of-sight distances.

WLIFE 9: Visitors would be educated to be sensitive to raptor nesting areas during breeding season and bighorn lambing areas from January to May.

WLIFE 10: Construction of trails, facilities, or ROWs would be seasonally restricted within an appropriate distance of occupied raptor nesting sites. Trails would be closed using seasonal or small area closures on a case-by-case basis to protect wildlife species during critical life periods.

WLIFE 11: Feral animals, including wild horses and burros, would be removed from the NCA by coordinating with appropriate local, State, and federal agencies on the trapping and transfer of populations of animals posing a threat to wildlife health or human health and safety.

WLIFE 12: Bird feeders would be prohibited within the NCA.

WLIFE 13: Special Status Species habitat would be maintained and protected to ensure suitable habitat conditions and viable populations. Disturbance or development would be avoided in areas of Special Status Species potential habitat. Disturbance or development would be mitigated in areas of Special Status Species habitat discovered during preactivity site-specific surveys.

WLIFE 14: BLM would encourage scientific research and monitoring of Special Status Species and encourage research partnerships with organizations such as universities and other educational groups.

2.4.13 Wildland Fire Management

Goals

- Manage fire to protect human health and property.
- Manage fire to keep wildland fire size to an absolute minimum to prevent conversion to red brome and other non-native grasses.

Objective

Protect human health and property.

Management Direction

Using the appropriate management response, BLM would provide wildland fire suppression efforts commensurate with resources and risk to adjacent property values. Education, law enforcement, and public outreach would be used to prevent or minimize risk of human-caused fires. Maximum fire protection would be provided through a comprehensive fire detection system using a multiagency approach.

FIRE 1: An NCA staff resource advisor would be consulted on all fires in the NCA. For specific fire suppression guidance, BLM would follow the *Fire Management Plan* (BLM 2004b).

2.4.14 Water Resources and Quality

Goal

Ensure NCA activities protect water resources and quality.

Objectives

- Manage and protect springs and water sources within the NCA.
- Maintain or improve the water quality within the NCA.

2.4.15 Air Quality

Goal/Objective

Ensure that emissions associated with NCA activities meet federal, State, and local air quality regulations and standards.

2.4.16 Livestock Grazing

Goal

Manage authorized livestock grazing consistent with the purposes of the Sloan Canyon NCA Act and the Clark County Act, Title II ("Wilderness Areas").

Objective

Manage livestock grazing in the Sloan Canyon NCA to attain the Standards—desired rangeland conditions, and expressions of physical and biological conditions required for sustaining rangelands for multiple uses, as approved in Nevada's *Mojave-Southern Great Basin Resource Advisory Council* (*RAC*), *Standards and Guidelines for Rangeland Health and Guidelines for Grazing Administration* (BLM 1997).

Management Direction

GRAZ 1: If on-the-ground evaluations determine that forage is available, BLM would allow livestock grazing in the Hidden Valley Allotment, consistent with allotment-specific objectives.

GRAZ 2: Grazing in the allotment would continue unless the permittee voluntarily relinquishes the privilege, permits, or leases, in which case the allotment would be closed to further livestock grazing.

GRAZ 3: Cattle are the only class of livestock authorized to graze on the Hidden Valley Allotment. Horses may be kept in corrals and used to perform ranch-related work.

GRAZ 4: BLM would manage the range resource consistent with the phenological and physiological requirements of key perennial species. Livestock grazing management would provide for increased plant vigor and reproductive capability of perennial forage to either maintain a static trend or achieve an upward trend of key perennial forage.

GRAZ 5: Placement of salt and mineral supplements and new range improvements would not be allowed within the NCA.

2.4.17 Geology and Soils

Goals

- Conserve and protect geological and soil resources within the NCA.
- Provide opportunities for scientific research within the NCA to understand and interpret the NCA's geologic history.

Objective

Manage activities within the NCA to maintain natural rates of soil loss and sedimentation.

Management Direction

GEO 1: Intrusive geologic research would be allowed in the NCA by permit to ensure regulatory compliance.

GEO 2: Intrusive geologic research would be prohibited in the Petroglyph Management Area and its northern access, and appropriate restrictions would apply in the remainder of the Wilderness.

2.4.18 Minerals

Goal/Objective

Recognize valid existing mineral rights in accordance with existing law, regulation, and policy.

2.4.19 Abandoned Mines

Goal/Objective

Reduce potential safety hazards associated with abandoned mines.

Management Direction

BLM would ensure that abandoned mine hazards are considered during planning, design, and construction of NCA facilities. When consistent with other resource objectives, abandoned mines would be closed.

2.4.20 Hazardous Materials

Goal

Reduce potential for hazardous materials contamination within the NCA.

Objectives

- Prevent illegal disposal of hazardous materials.
- Ensure that NCA management actions are designed to minimize hazardous waste generation and prevent pollution.
- Assess the impacts of released hazardous materials and determine the appropriate response, removal, and remedial actions.

2.5 Management Actions Considered But Not Included

During the public scoping process and discussions with cooperating agencies, numerous possible management actions were raised for BLM consideration. As part of the development of reasonable alternatives, the planning team rigorously explored and objectively evaluated all the suggested actions. This section identifies the actions that were eliminated from further consideration and provides a brief explanation of the reasons for elimination. In general, actions were eliminated if they did not comply with the purpose and intent of the Sloan Canyon NCA Act and other laws, regulations, and policy.

2.5.1 Extensive OHV Trail System

Much of the northern and western portion of the NCA lies within the Clark County Air Quality Nonattainment area for particulate matter (PM_{10}). Additional OHV trail systems and "play" areas were not considered because the purpose of Sloan Canyon NCA, as directed by Congress in the Sloan Canyon NCA Act, Subsection 602, is "to conserve, protect, and enhance for the benefit and enjoyment of present and future generations the cultural, archaeological, natural, wilderness, scientific, geological, historical, biological, wildlife, educational, and scenic resources of the Conservation Area." Subsection 605(c) of the Act states that the Secretary of the Interior is to "allow only such uses of the Conservation Area that the Secretary determines would further the purpose described under subsection 602" (above). The proposed management plan seeks to provide recreational opportunities that are consistent with the directives provided by the Act.

2.5.2 Recreational Target Shooting Facilities

Recreational target shooting facilities were not considered for several reasons: they are not compatible with the purpose of the NCA; there are existing recreational target shooting facilities throughout the Las Vegas Valley, including Boulder City and North Las Vegas; and they generate litter and hazardous materials through lead accumulation in bullet impact areas.

CHAPTER 3

Affected Environment

3. AFFECTED ENVIRONMENT

This chapter describes the existing physical, biological, social, and economic characteristics of the Sloan Canyon National Conservation Area (NCA) and its associated planning area. The affected environment defines the baseline of existing conditions from which possible impacts of the plan may be analyzed. The baseline data were provided by the Bureau of Land Management (BLM) Las Vegas Field Office; federal, State, county, tribes, and local agencies; various organizations; field surveys; and other public and private sources. Data sources include published and unpublished reports, maps, geographic information systems (GIS), and field observations.

3.1 PHYSIOGRAPHY

The Sloan Canyon NCA is located in the northern half of the McCullough Range, in the northeastern portion of the Mojave Desert. The basin and range topography typical of the Great Basin is prevalent on a local scale, especially along the eastern front of the range. The northern end of the McCullough Range has a vertical relief of more than 2,500 feet, rising above surrounding valleys to a high point of 5,000 feet at Black Mountain.

A long escarpment or steep slope dominates the topography of the northern portion of the McCullough Range, with the eastern slopes much steeper than the western slopes. The escarpment was formed during a series of volcanic flows, with the record of these flows preserved because of the minimal faulting (Purkey 1994). Hidden Valley, located at the southwest corner of the NCA, represents a broad depression containing deep wind-blown sand deposits.

No perennial streams are located within the northern portion of McCullough Range; however, there are several small springs and seeps and numerous dry washes. These washes may experience surface flows during precipitation events.

3.2 CLIMATE

The eastern Mojave Desert is one of the most arid regions in North America. The region generally experiences hot summers, mild winters, and wide daily temperature fluctuations caused by the radiation of daytime surface heat into evening skies. Average daily maximum temperatures range from 104 °F in July to 56 °F in January, although summer temperatures of 115 °F are not uncommon within the NCA, and temperatures over 120 °F can occur. The average daily minimum temperature ranges from 75 °F in July to 33 °F in January. Winters are generally mild; however, freezing temperatures do occur with some regularity (U.S. Weather Service 2004).

The average annual precipitation in the Sloan Canyon NCA area is about 4.5 inches, and it often occurs during monsoon-driven heavy thunderstorms accompanied by flash flooding. Much of this precipitation is subsequently lost to evaporation, which is accelerated by low relative humidity and strong winds.

A variety of factors affect weather patterns in southern Nevada. Most of the area experiences relatively stable fair weather conditions resulting from high-pressure systems over the Great Basin (MacMahon 1997). Periodic weather changes occur, affected by a stream of westerly winds blowing over the area during the winter months. Occasionally, cold temperatures and snowfall are produced by winter low-pressure systems. Winds from the west are lighter in the summer months, and subtropical high-pressure systems moving northward have a stronger influence on regional weather during this season. Although

intense storms occur, monsoonal moisture from the south is significantly diminished by the time it reaches Nevada, resulting in clear and relatively dry summers (MacMahon 1997, Speck 1982).

3.3 RECREATION

Recreation use in the NCA area historically has been dispersed and at low to moderate levels; however, it has increased along the urban interface with the growth of the Las Vegas Valley population. In general, the NCA has few roads, routes, trails, or facilities to support recreation. Activities such as hiking and off-highway vehicle (OHV) riding have been and continue to be the predominate uses within the NCA. Recreationists are frequently long-time users of specific locations, largely self-sufficient, and may be unaware of the relatively recent NCA designation.

Before passage of the Sloan Canyon NCA Act, the *Proposed Las Vegas Resource Management Plan and Final Environmental Impact Statement* (*Las Vegas RMP*) (BLM 1998a) guided management of recreation in the North McCullough Range, although few decisions provide specific direction for the land currently within the NCA. The *Clark County Multiple Species Habitat Conservation Plan (MSHCP)* (Clark County Department of Comprehensive Planning [CCDCP] 2000) provides additional management direction for conservation within the NCA. Administrative actions taken through the *Las Vegas RMP (*BLM 1988a) closed portions of the NCA to shooting, camping, and OHV use (Figure 3.1).

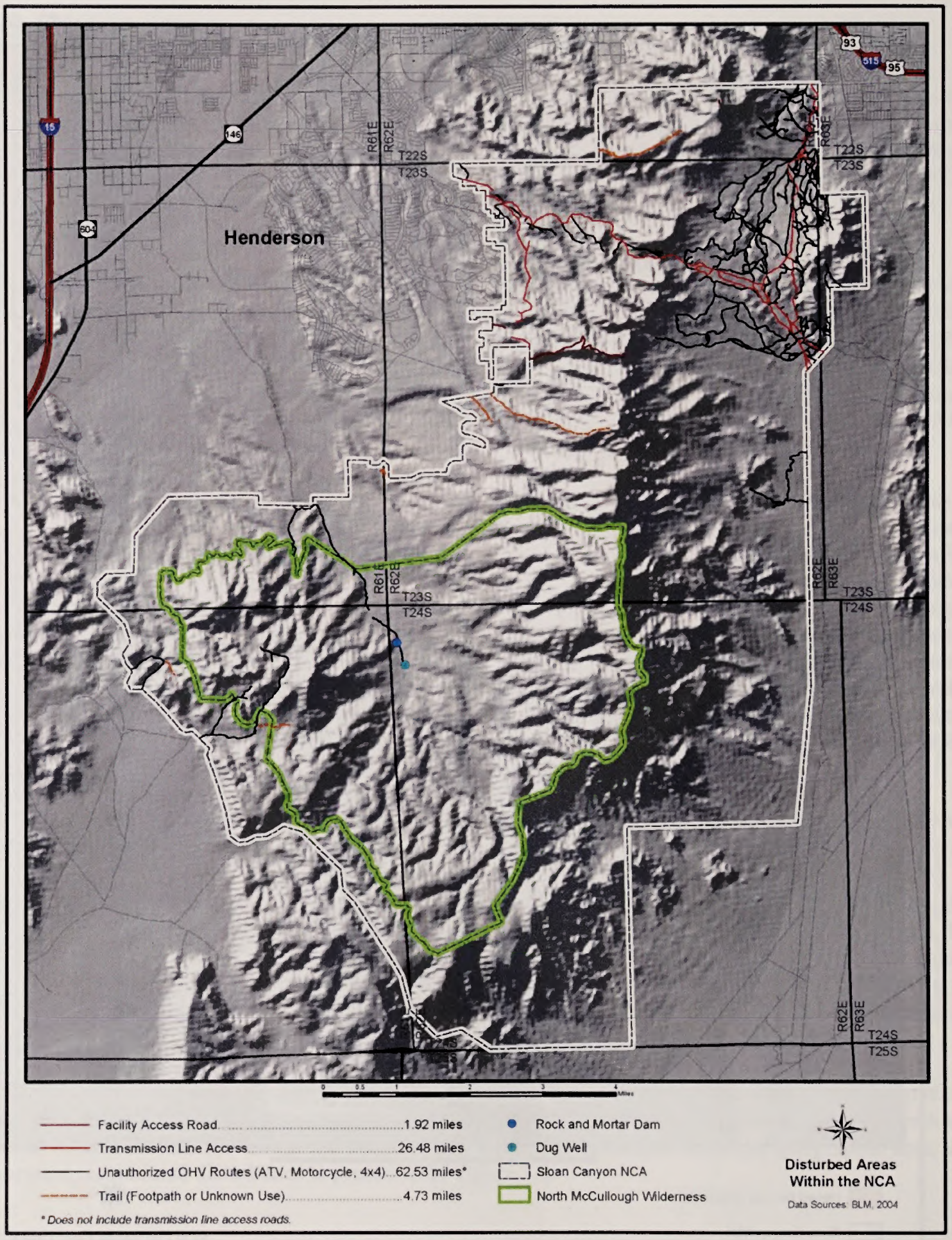
BLM began visitor use observations in November 2003 to track visitor numbers, determine types of visitors, and discern daily and seasonal recreation activities. The number of visitors was recorded daily between November 2003 and July 2004 at several spots throughout the NCA, including Hidden Valley, the Sloan Canyon Petroglyph Site and the northeast corner of the NCA. During this observation period, approximately 4,000 visitors were counted within the NCA (one visitor equals one person recreating in the NCA for any amount of time in the course of 1 day). This total equates to an average of 15 visitors per day. Visitor patterns indicated peak visitation (15 to 35 visits per day) on weekends and lower use (5 to 15 visits per day) on weekdays. Extrapolated to a full calendar year, the observed visitor total would be approximately 5,500 annual visits. For purposes of planning and analysis, it was assumed that actual visitation is five times higher than the observed. Hence current visitation is estimated to be about 28,000 visitors per year.

Even without the development of additional visitor facilities, visitation is expected to increase as the NCA becomes better known, the regional population grows, and surrounding development grows closer to the NCA boundary. The current annual growth rate in Clark County is 4 percent (Clark County 2003a). If this constant growth rate were applied to NCA visitation, total visitation in 2030 would be roughly 75,000. However, other factors could increase visitation to considerably higher levels. For example, Las Vegas has numerous weekly and monthly publications that list "things to do," including visiting natural areas such as Red Rock Canyon NCA and Valley of Fire State Park. The Sloan Canyon NCA is not currently listed in these publications but may be in the future, and visitation is expected to increase dramatically.

Although the precise numbers of visitors participating in specific activities are unknown, general patterns have been derived through visitor observations throughout the NCA. Because of the rugged terrain and distinct natural boundaries within the NCA, recreation use is discussed below by geographic area, and associated recreational disturbance is presented in Figure 3.2.

Figure 3.1. BLM Las Vegas Office Shooting, Camping, and OHV Closures

Figure 3.2. Disturbed Areas within the NCA



3.3.1 Recreation Use by Area

3.3.1.1 Northwestern NCA

Because of rugged terrain and rocky soils, recreation in the northwestern portion of the NCA is largely restricted to nonmotorized uses, except at a few access points. Motorized access to this area is primarily through the East-West Power Line Road and through the Eastern Avenue extension to the Black Mountain Communication Site Road. Other recreationists access this area on foot from adjacent neighborhoods in the City of Henderson. A small number of unofficial trails, which were developed without BLM approval, are known to exist in this area of the NCA. Current use of these unofficial trails is thought to be nearly all hiking, with limited amounts of mountain biking and horseback riding.

The northwestern area receives low but unknown levels of recreation use. Continually changing access and urban patterns may influence the timing and amount of recreation in the area. Overall demand for dispersed recreation use is expected to increase as the urban interface adjacent to the NCA stabilizes. Regional trail-planning efforts by other federal agencies, the City of Henderson, and other local communities would likely present opportunities to develop integrated trail systems.

3.3.1.2 Northeastern NCA

OHV use is the primary recreation activity in the northeastern portion of the NCA. The basin in the far northeast corner of the NCA has been heavily used by motorcycles, OHVs, and four-wheel-drive vehicles and contains numerous existing routes and trails. Large portions of this area are experiencing resource damage from braided routes, steep grades, and the pioneering of new routes. None of the routes in the area are maintained by BLM, however two roads associated with the north-south and east-west power lines receive limited maintenance by the Nevada Power Company.

Because of the relatively easy access, recreational target shooting also occurs in this area, and trash and debris dumping are widespread. Bighorn sheep in the area may be of interest for wildlife watching and for Nevada Department of Wildlife (NDOW)-permitted hunting. In addition, a limited amount of hiking occurs around numerous small peaks along the NCA's eastern boundary.

3.3.1.3 North McCullough Wilderness and Surrounding NCA

The North McCullough Wilderness encompasses the Sloan Canyon Petroglyph Site as well as a broad desert basin that is surrounded by portions of the North McCullough Range, which delineates the Wilderness boundary. The Wilderness receives low levels of dispersed use because of its rugged terrain and prohibition of vehicles. The majority of recreationists use the Wilderness when they visit the Sloan Canyon Petroglyph Site, which is usually accessed from the north via the Sloan Canyon wash. Visitation to the Sloan Canyon Petroglyph Site increased with the NCA designation, and large parties, including organized hiking groups, visit the site. Hiking and horseback riding opportunities abound within the Wilderness, and destinations frequently include the Sutor and Hanna Peaks, the North McCullough escarpment, and the Sloan Canyon Petroglyph Site. There are also numerous opportunities for wildlife watching, hunting, and dispersed camping in the Wilderness.

On its western and northern boundary, rugged terrain and rocky soils discourage illegal vehicular access into the Wilderness. A small amount of motorized use of the Wilderness is known to be occurring in Hidden Valley near the southern access to the Sloan Canyon Petroglyph Site.

A small perimeter of NCA lands lies outside the North McCullough Wilderness on its north, west, and southwest boundaries. In these areas, minor amounts of recreational target shooting and OHV use occur.

Limited amounts of dispersed camping and wildlife-watching opportunities also exist in this area. Access to the Wilderness and this perimeter area is limited to a few routes, which lie mostly outside the NCA boundary.

Visitor use has not been closely monitored in the Wilderness and surrounding NCA. On the basis of limited monitoring in 2003–2004, preliminary visitor estimates within the Wilderness indicate approximately 5 to 10 persons accessing the Sloan Canyon Petroglyph Site per weekday, with slightly higher visitation on weekend days. Outside the Wilderness, limited visitor use observation indicates moderate levels of OHV use, hiking, and occasional camping.

3.3.1.4 Southeastern NCA

Minor recreation use occurs in the southeastern portion of the NCA. Rugged terrain, rocky soils, and very few roads, routes, or trails preclude easy access. In addition, few well-known points of interest are in the area. The area is primarily suitable for hiking, with very limited amounts of four-wheel drive access to the extreme southeast corner of the NCA. Levels of recreation use in this area have not been monitored and are thought to be extremely low.

3.3.2 Special Recreation Permits

Currently, no special recreation permits are issued or under review within the Sloan Canyon NCA.

3.4 North McCullough Wilderness

The Clark County Act, Title II ("Wilderness Areas") designated the North McCullough Wilderness on November 6, 2002. Before designation, most of the current Wilderness was part of the 47,166-acre North McCullough Wilderness Study Area (WSA). The 14,765-acre North McCullough Wilderness is located entirely within the southwest portion of the NCA, in the northern half of the McCullough Range (Figure 3.3). This Wilderness is a unique component of the National Wilderness Preservation System because it is fewer than 15 miles south of the rapidly growing city of Las Vegas.

The North McCullough Wilderness is located to the south and immediately adjacent to the Las Vegas Valley, in the north half of the north-south-trending McCullough Range (Figure 3.3). It is roughly triangular in shape and spans approximately 6 miles at its longest and widest points. The eastern boundary follows the crest of the escarpment, the base of which forms the eastern edge of the NCA. The volcanic features that rim Hidden Valley define the western boundary. The northern boundary crosses the Sutor Hills, Sloan Canyon, and a large basin that contains the Sloan Canyon Petroglyph Site and other prominent features, such as Sutor and Hanna Peaks. The massive, rounded to flat-topped volcanic peaks have a gradual western slope. The Wilderness interior is composed of a broad, 2-mile wide central valley separating the main ridgeline to the east, from the rugged Sutor Hills. Elevations range from 2,850 feet at the lower end of the central valley to 5,058 feet at the ridgeline of the McCullough Range on the east side of the Wilderness.

3.4.1 Wilderness Characteristics: Naturalness, Solitude, and Opportunities for Primitive and Unconfined Recreation

The quality of the wilderness values were a key consideration in designating the North McCullough Wilderness. The Wilderness appears natural, but there are a few signs of human use (i.e., disturbances,

Figure 3.3. North McCullough Wilderness

developments) introduced into the environment before the area's designation. These include two-track vehicle routes, rock and motor dam, dug well, and a wildlife water development (guzzler).

Despite its proximity to a largely populated urban area, the portion of the Wilderness outside the Petroglyph Management Area possesses good solitude opportunities because of the historically low levels of visitor use; lack of trails and other developments; and topography that provides some natural screening from the adjacent urban area or other Wilderness users. A lesser degree of solitude is available within the Petroglyph Management Area as this is the heaviest-visited area within the Wilderness. The primeval character of the entire Wilderness is essentially intact except for the occurrence of some introduced plants, primarily annual grasses.

3.4.2 Resource Conditions

The North McCullough Wilderness consists of the Mojave Desert scrub vegetative community. This community is primarily composed of low, widely spaced shrubs, including the creosote bush (*Larrea tridentata*) and the white bursage (*Ambrosia dumosa*). Other affiliated community shrubs include ephedra (*Ephedra* spp.); brittlebrush (*Encelia virginensis*); burro bush (*Hymenoclea salsola*); sweetbush, or bebbia (*Bebbia juncea*); and desert saltbush (*Atriplex polycarpa*). Characteristic species associated with the Mojave Desert include Mojave yucca (*Yucca schidigera*), teddybear cholla (*Opuntia bigelovii*), and hedgehog cacti (*Echinoceres* spp.). Short-lived annual and perennial wild flowers appear in late March, April, and May, and when prompted by winter rains.

Four vegetation associations are represented within the Sloan Canyon NCA and the Wilderness: volcanic basalt slope, moderate creosote (greater than 30 percent cover), sparse creosote/bursage mix, and desert wash (BLM 2004e). Detailed descriptions of the vegetation associations are included in Section 3.12 and Figure 3.10 of the Sloan Canyon Resource Management Plan (RMP)/Environmental Impact Statement (EIS).

Although only one vegetative community, Mojave Desert scrub, is represented in the Wilderness, it supports a variety of wildlife species, including desert bighorn sheep (*Ovis canadensis nelsoni*), Gila monster (*Heloderma suspectum cinctum*), and chuckwalla (*Sauromalus obesus*). The primary natural factors that influence populations and distribution of wildlife are water availability, vegetation, topography, and weather patterns. To date, the actual number of wildlife species occurring within the Wilderness is unknown, however vertebrate wildlife species found within Wilderness borders represent three major classes: reptiles, birds, and mammals.

Wildlife Special Status Species include species federally listed as Threatened and Endangered, Proposed for Listing, or Candidates for Listing under the Endangered Species Act (ESA). They also include species designated by each BLM State Director as Sensitive and those listed, or proposed for listing, by a State in a category implying potential endangerment or extinction. Presently the Mojave population of the desert tortoise (*Gopherus agassizii*) is listed as Threatened and is the only federally protected species located in the NCA and potentially within the Wilderness (United States Fish and Wildlife Service [USFWS] 2003). A listing of wildlife Special Status Species that may be found in the North McCullough Wilderness is presented in Table 3.6 of the Sloan Canyon RMP/EIS.

No natural perennial water sources exist within the Wilderness, but high-intensity thunderstorms can produce rapid runoff and flash flooding. Sloan Canyon hosts an ephemeral stream, where water is found in the channel only during and immediately after rainstorms. The North McCullough Slickrock Catchment #1 (Project 4916) is the only wildlife water development (guzzler) within the Wilderness and was installed before Wilderness designation, while the area was a WSA.

Motorized access to the Wilderness is limited to several vehicle routes approaching from the northwest in the Sloan Canyon area and the southwest from Hidden Valley. These routes access Sloan Canyon and the wash leading to the Sloan Canyon Petroglyph Site. Other access to the Wilderness boundary is by off-trail hiking or horseback riding, because no formal trails, trailheads, or associated developments are adjacent to or within the Wilderness. For the most part, rugged and rocky terrain discourages unauthorized vehicular access into the Wilderness. A small amount of unauthorized motorized use of the Wilderness has occurred at the Hidden Valley side, near the southern access to the Sloan Canyon Petroglyph Site.

No areas of high mineral resource potential have been identified in the Wilderness. There are no mineral leases and only one current but undeveloped claim intruding slightly into the northwest portion of North McCullough Wilderness. The validity of the claim has not been determined.

Low-level aircraft flights occur over the Wilderness. The highest percentage of low-level overflights is from scenic tours originating from local-area airports, although private flights from Henderson Executive Airport, located several miles from the northern Wilderness boundary, also contribute. In addition commercial flights from McCarran International Airport pass directly over the Wilderness, although they tend to be localized to the western edge and at an altitude of more than 4,000 feet. Legislation currently before Congress proposes a future heliport located west of the NCA and mandates a 2-mile wide helicopter flight corridor over the Wilderness. The legislation would allow helicopter overflights over the Wilderness at elevations between 500 and 1,000 feet above ground. As proposed, about 90 round trip overflights a day, equating to a flight about every 4 minutes, could emanate from the heliport.

The Hidden Valley Allotment is currently open to livestock grazing. A portion of this ephemeral allotment lies within the North McCullough Wilderness, but because of the rugged terrain and lack of water, cattle typically do not wander into the Wilderness. Within this portion of the allotment, there are no developments associated with livestock grazing.

Wildland fires in the vicinity of the North McCullough Wilderness generally occur in the summer but are not uncommon in the spring, and they occasionally occur late into the fall months. Within the Wilderness, however, there are few recent wildland fire occurrences. This lack of fire is attributed to the sparseness and low stature of the shrub vegetation. Even in years of ephemeral buildup of non-native annual grasses, the rockiness of the terrain and discontinuity of the fuel bed minimizes the risk of wildland fire spread.

3.4.3 Wilderness Recreation Use

The currently low levels of recreation use within the North McCullough Wilderness are expected to increase with the rapid growth rate of the Las Vegas Valley and as information about recreational opportunities within the Wilderness and NCA becomes more available. Except for some recent monitoring of visitation to the Sloan Canyon Petroglyph Site, visitor use has not been closely monitored.

Generally the Wilderness receives low levels of dispersed recreational use, primarily because of its rugged terrain and limited vehicle access to its boundary. There are opportunities for wildlife watching and permitted hunting in the Wilderness. Hiking and horseback riding opportunities abound within the Wilderness, with destinations frequently, including the Sutor and Hanna Peaks, the North McCullough escarpment, and the Sloan Canyon Petroglyph Site. Although opportunities for camping are possible, this form of recreation is not frequently pursued.

The majority of recreationists use the Wilderness when they visit the Sloan Canyon Petroglyph Site, which is usually accessed from the north by way of the Sloan Canyon wash. Visitation to the Sloan

Canyon Petroglyph Site increased following the designation of the NCA and Wilderness, with large parties, including organized hiking groups, frequenting the site. Based on limited monitoring in 2003–2004, preliminary visitor estimates indicate approximately 5 to 10 persons accessing the Sloan Canyon Petroglyph Site per weekday, and 15 to 20 persons on weekend days.

3.4.4 Disturbance, Development, and Wilderness Impacts

A disturbance inventory for the North McCullough Wilderness was completed in January 2003. Findings from the inventory indicate relatively little disturbance that requires rehabilitation, but several vehicle tracks and several small spurs may require restoration. Developments include the rock and motor dam and dug well (BLM 2003d). Approximately 3.75 miles of two-track vehicle routes and 244 square yards (0.05 acres) of disturbance associated with a rock dam and dug well were identified.

Wilderness disturbances and developments found during this inventory are listed in Table 3.1 and presented in Figure 3.4.

The North McCullough Slickrock Catchment #1 (Project 4916) is the only wildlife water development within the Wilderness and is just south of the Sloan Canyon Petroglyph Site. This wildlife water development was installed before Wilderness designation, when the area was a WSA. The environmental assessment for the development stated that motorized vehicles would not be required for future maintenance.

The Wilderness boundary is inaccessible to vehicles in many places, but in some portions the Wilderness is not well-defined by natural features. All known vehicle access points are currently posted. Although unauthorized use of the Wilderness has not been a significant issue in the past, increased publicity and visitation could require boundary delineation. The boundary is currently marked and signed in only a handful of locations to inform visitors of the change in management when entering the area. Continuing or increased levels of disturbance from unauthorized use of the Wilderness remains a possibility until known access points are signed and barricaded as appropriate.

Table 3.1. North McCullough Wilderness Disturbances and Developments

Disturbance/ Development Number	Description	Length (miles)	Area of Disturbance	Location
1	Two-track vehicle route entering Wilderness from northern boundary	1.47 miles	1.75 acres	East of Sloan Canyon. Approximate route and location shown as 4-Wheel Drive road on United States Geological Survey 1:24,000 maps. T 23 and 24 S; R 61 and 62 E; Sections 36, 1, 6
2	Short two-track vehicle route intersecting Disturbance 1 near northern boundary	.07 miles	.08 acres	T 23 S; R 61 E; Section 36
3	Two-track vehicle route entering Wilderness from Hidden Valley	.30 miles	.35 acres	T 24 S; R 61 E; Section 3, SW1/4,SW1/4,SW1/4
4	Short two-track vehicle route intersecting Disturbance 3 near southern boundary	.09 miles	.10 Acres	T 24 S; R 61 E; Section 10, NE1/4,NE1/4
5	Two-track vehicle route accessing North McCullough Slickrock Catchment #1 from the southern boundary and continuing to west	1.3 miles	1.51 Acres	T 24 S; R 61 E; Sections 2 and 11
6	Short two-track vehicle route	.12 Miles	.14 Acres	T24 S; R 61 E; Sections 2 and 11

Disturbance/ Development Number	Description	Length (miles)	Area of Disturbance	Location
	intersecting Disturbance 5			
7	Rock and motor dam	N/A	133 square yards	T 24 S; R 61 E; Section 1, and 6
8	Dug well	N/A	111 square yards	T 24 S; R 62 E; Section 6, SW 1/4
9	Short two-track vehicle route intersecting Disturbance 5 near southern boundary	.24 Miles	.28 Acres	T 24 S; R 61 E; Section 11
North McCullough Slickrock Catchment #1	Wildlife water development including catchment, tanks, and water access for wildlife	N/A	N/A	T 24 S; R 61 E; Section 2

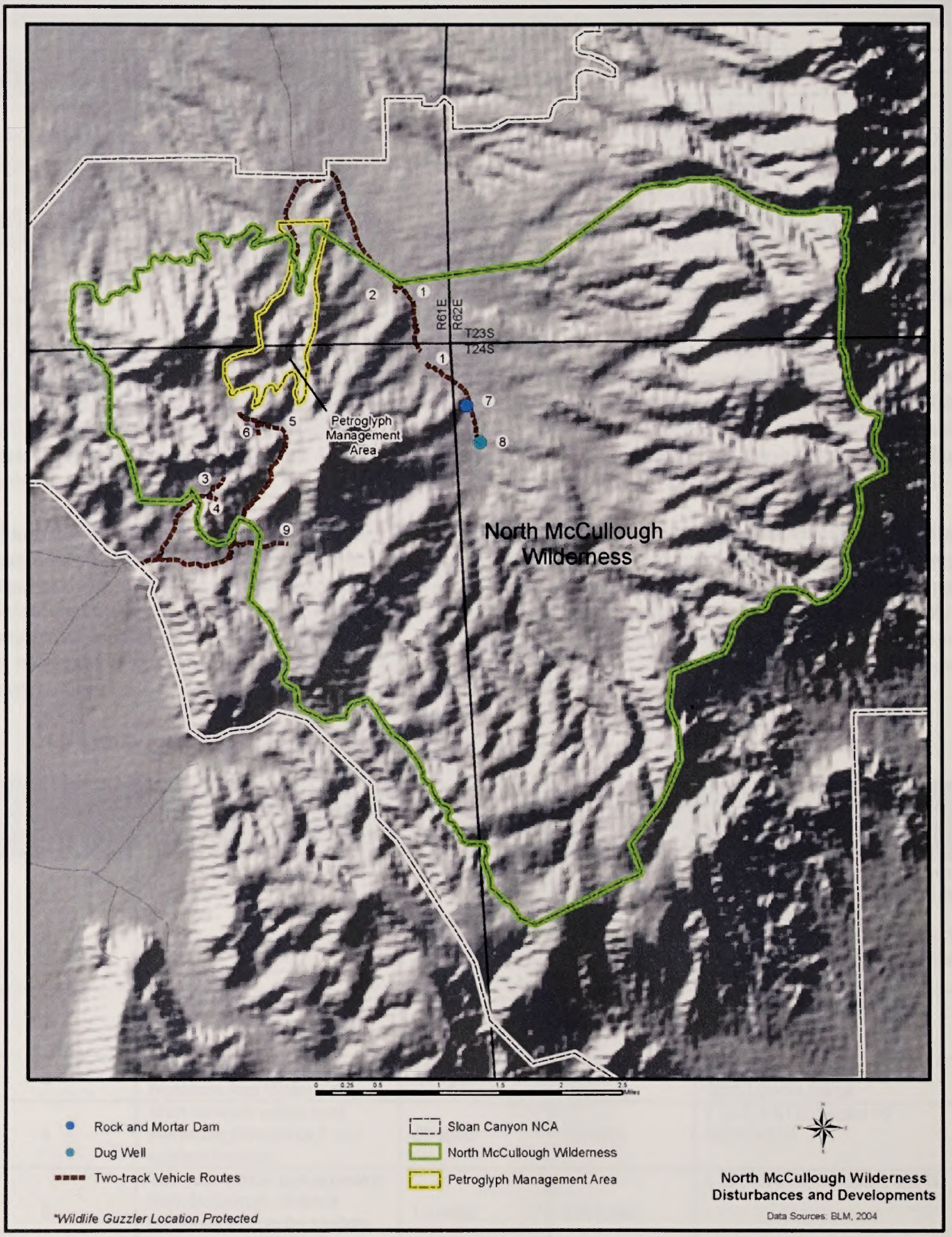
Source: BLM 2003.

3.4.5 Regulatory Framework

On November 6, 2002, the Clark County Act, Title II ("Wilderness Areas") designated the North McCullough Wilderness from lands formerly identified as the North McCullough. The North McCullough Wilderness is managed according to the Wilderness Act of 1964, the Federal Land Policy and Management Act, the Clark County Act, and BLM Wilderness Regulations published in 43 Code of Federal Regulations (CFR) 6300. BLM implements these laws through its regulations pertaining to Management of Designated Wilderness Areas at 43 CFR 6300.

BLM currently manages the North McCullough Wilderness by providing protection of the area, preserving its wilderness character, and disseminating information about its use that would enhance the public's present and future use of the Wilderness. BLM is directed to manage all activities conducted in wilderness areas in a manner that preserves their wilderness character.

Figure 3.4. North McCullough Wilderness Disturbances and Developments



3.5 CULTURAL RESOURCES

Evidence of historic and prehistoric use of the Sloan Canyon area has been identified through field inventories (surveys), historical documentation, and oral records. A search of archaeological records identified 32 cultural resource surveys/inventories completed in and around the Sloan Canyon NCA before this planning effort. These surveys identified 54 cultural resource sites in and near the NCA. A systematic, 20 percent sample survey of the NCA was completed as part of this RMP, and 90 additional sites were identified.

3.5.1 Cultural Context

Archaeological evidence suggests that resources within the NCA may have been used for nearly 7,000 years. Limited evidence from cultural resource inventories indicates that Early Archaic cultures used the NCA and the surrounding area for hunting and gathering earlier than 4,000 years ago. The low number of projectile points, combined with the lack of contemporary hunting camps and other hunting features suggest that although the area was used for hunting, use was limited (Duke et al. 2004). An increase in the proportion of Middle Archaic projectile points in relation to earlier points suggests that a patterned use of the NCA's hunting resources occurred between 3,300 and 1,300 years ago (Duke et al. 2004). As with Early Archaic use, the small number of Middle Archaic sites and the lack of related hunting features and habitation sites indicate hunting expeditions into the NCA were not common. Although archaeological evidence suggests the use of the NCA by Native cultures during the Archaic Period, this use was minor when compared to later uses.

The Ceramic Period (1,500 A.D.) marks the beginnings of Puebloan influence in the Las Vegas Valley (Duke et al. 2004). These cultures adopted lifestyles more sedentary than Archaic cultures, often supplementing hunting and gathering with floodplain agriculture. Their ceramics were the most prevalent ware identified within the NCA, indicating a Virgin Branch influence between A.D. 500 and 1200. In addition, artifacts distinctly from the Patayan cultural tradition (Lower Colorado or Yuman) were identified during inventories. Although substantially less common than the Anasazi, the Patayan presence indicates concurrent use of the NCA's resources by more than one culture. By approximately A.D. 1300, the Virgin Anasazi withdrew from the area, roughly 150 to 200 years later than the Pueblo retraction throughout the remainder of the Southwest. At about the same time, Numic, or Shoshonean, cultures made their appearance in the area (Duke et al. 2004.)

When the Europeans arrived, the primary inhabitants of Sloan Canyon were the Las Vegas Band of the Southern Paiute and the closely related Chemehuevi (Duke et al. 2004). Another group, the Mojave, did not share core areas with the Paiute or Chemehuevi, but they did make extensive forays into the deserts and mountains of southern Nevada and sometimes inhabited areas jointly with the other cultures. All these groups employed hunting and gathering methods, supplemented with agricultural cultivation in varying degrees of dependency to supply their resource needs (Duke et al. 2003, BLM 1998a, Myhrer 1991). Vegetation resources were generally a larger part of the diet than was game, which is supported by evidence from the archaeological record. Hunting and gathering relied on exploitation of resources from the surrounding valleys and ranges. The patterns of vegetation and wildlife that are characteristic of southern Nevada played a role in the type of uses and, subsequently, the types and distribution of prehistoric cultural resource sites present in the Sloan Canyon NCA.

The valleys surrounding the McCullough Range were initially utilized by Europeans approximately 150 years ago for transportation routes. These routes were employed in the exploration, settlement, and growth of the area. Springs in Las Vegas were an anticipated resting place by those traveling the Old Spanish/Mormon Trail (Duke et al. 2003). The earliest settlements occurred as a result of the proximity

to the transportation routes. They were later joined by settlements to take advantage of the ranching and mining resources available in and around the Sloan Canyon NCA. Construction of the San Pedro, Los Angeles, and Salt Lake City Railroad in 1905 stimulated the area's mining pursuits, resulting in the establishment of several mining districts, including the Alunite Mining District and the Quo Vadis Mining Company within the present NCA. During this period numerous claims were filed within the present Sloan Canyon NCA. The next major stimulus historically was the construction of Hoover Dam. Job seekers hoping to work on the dam lived in squatters' camps throughout the area.

Although technologies surrounding land uses have changed from prehistoric time, the environmental characteristics of the area have shaped its historic use and, subsequently, the types of historic cultural resource sites present in the Sloan Canyon NCA. Archival research gave little reason to anticipate that historic-period sites would be common, and inventory findings support this assessment.

3.5.2 Cultural Resource Inventories

The entire NCA contains cultural resource sites, although certain areas have higher site density. The Class I cultural resources inventory (a literature review) identified 54 known archaeological sites in and around the Sloan Canyon NCA. Eighty-five percent are prehistoric sites, 15 percent are historic sites. Patterns from the Class I inventory completed in November 2003 led to an expectation of low site densities throughout the NCA, outside of Sloan Canyon itself (Duke et al. 2003). This expectation was confirmed by results from a Class II cultural resources inventory. The Class II inventory consisted of a 20 percent sample field survey that identified 90 sites, nearly 80 percent of which are prehistoric sites.

Through the Class I and II cultural resource inventories, prehistoric sites have been assigned one of five site types and an associated activity assemblage. Each site type is characterized by the presence of certain artifacts in conjunction with site function and location. More complex site types may have several different types of artifacts present together. The following site types were used as the basis for interpreting prehistoric activity assemblages in the NCA:

- Simple Flaked Stone Assemblage
- Quarry Site/Segregated Reduction Sites
- Simple Milling Equipment/Pottery Assemblage Sites
- Distinctive Feature/Artifact Sites
- Complex Feature/Artifact Assemblage Sites.

About 20 percent of the sites identified in the Class II inventory contain a small number of millingstones (usually one or two) located in conjunction with temporary habitations. Another 10 percent have just a few rock art panels or a few simple rock features, such as cairns or rectangular rock alignments. The remaining sites have more elaborate assemblages, suggesting longer use and more varied activities. In comparison to the archaeological record found in most of the Mojave Desert, flaked stone scatters in the NCA are scarce, as are projectile points from past hunting activities.

The Sloan Canyon Petroglyph Site, located within the North McCullough Wilderness, contains more than 300 panels of rock art with more than 1,700 elements recorded along a .5-mile stretch of canyon. The rock art in the canyon includes both petroglyphs and pictographs. Although cultural affiliation has not been determined for each panel, archaeologists studying Sloan Canyon believe it has been used by all the

Native American cultures mentioned earlier, and the canyon is culturally significant to the Native Americans of the area today. As a whole, the archaeological artifacts found in Sloan Canyon are in good condition, although impacts have occurred as a result of erosion, recreational use, and vandalism. In addition to Sloan Canyon, cultural resource inventories have found rock art at 19 other sites in and around the NCA but never in the quantities of, or as elaborate as, those in Sloan Canyon itself.

Compared to prehistoric activity within the NCA, historic use of the McCullough Range has been low (Duke et al. 2003). Activities that occurred within the NCA include mining (related to both an established mining district as well as Depression-era subsistence mining) and uses related to construction of Hoover Dam, prospecting, and livestock grazing sites. There are 15 historic sites identified, with mine complexes being the most common. Although the density of historic period resources is expected to be low within the NCA, property types likely to be encountered include the following:

- Adits (horizontal mine tunnels)
- Shafts
- Prospects
- Industrial (mining-related) debris scatters
- Roadside debris scatters
- Small waste dumps
- Light-duty roads that exhibit few signs of having been "constructed"
- Isolated cabin sites
- Temporary tent camps
- Settlement-related debris scatters.

Of the historic sites identified to date, only two have been identified as potentially eligible for inclusion on the National Register of Historic Places (NRHP).

3.5.3 Sensitivity Model

Analysis of the Class II inventory results provided the groundwork for development of a site sensitivity model for use in this planning effort. Various environmental and geographical criteria were applied, and following testing, the model identified acres of NCA in sensitivity classes, as noted in Table 3.2.

It should be noted that the model, although a useful tool in estimation and analysis, is not meant to replace inventories completed by permitted archaeologists. Because the number of sites identified in the NCA is small, the model was developed and tested from a sample of sites that may not produce statistically significant results. This is a result of the extremely low density of sites in the NCA. The model may be used in analysis and in prioritizing areas for management and/or future inventory. Because of the sensitive and protected nature of cultural resource sites, information related to cultural resource site location or sensitivity level will not be identified further in this document. This information, however, was used in the impact analysis.

Table 3.2. Archaeological Prehistoric Sensitivity Classes

Sensitivity Classes	Acres in NCA	% of NCA
Low	17,477	36.1
Medium	23,082	47.6
High	7,891	16.3

Source: Duke et al. 2004.

3.5.4 Cultural Affiliation

As part of the RMP process, consultation was initiated with 15 Native American tribes and bands that claim ancestral ties to, or traditional cultural use of, the lands in the NCA (section 5.6). An intensive ethnographic study was undertaken with the cooperation of tribal officials and individual members to identify and evaluate the cultural resources of the NCA. Tribal representatives identified the Sloan Canyon Petroglyph Site as the only culturally significant area in the NCA, and these representatives have expressed concerns over the site's preservation and protection from damage and disturbance (Bengston and Kelly 2004).

3.6 Special Designations—Areas of Critical Environmental Concern

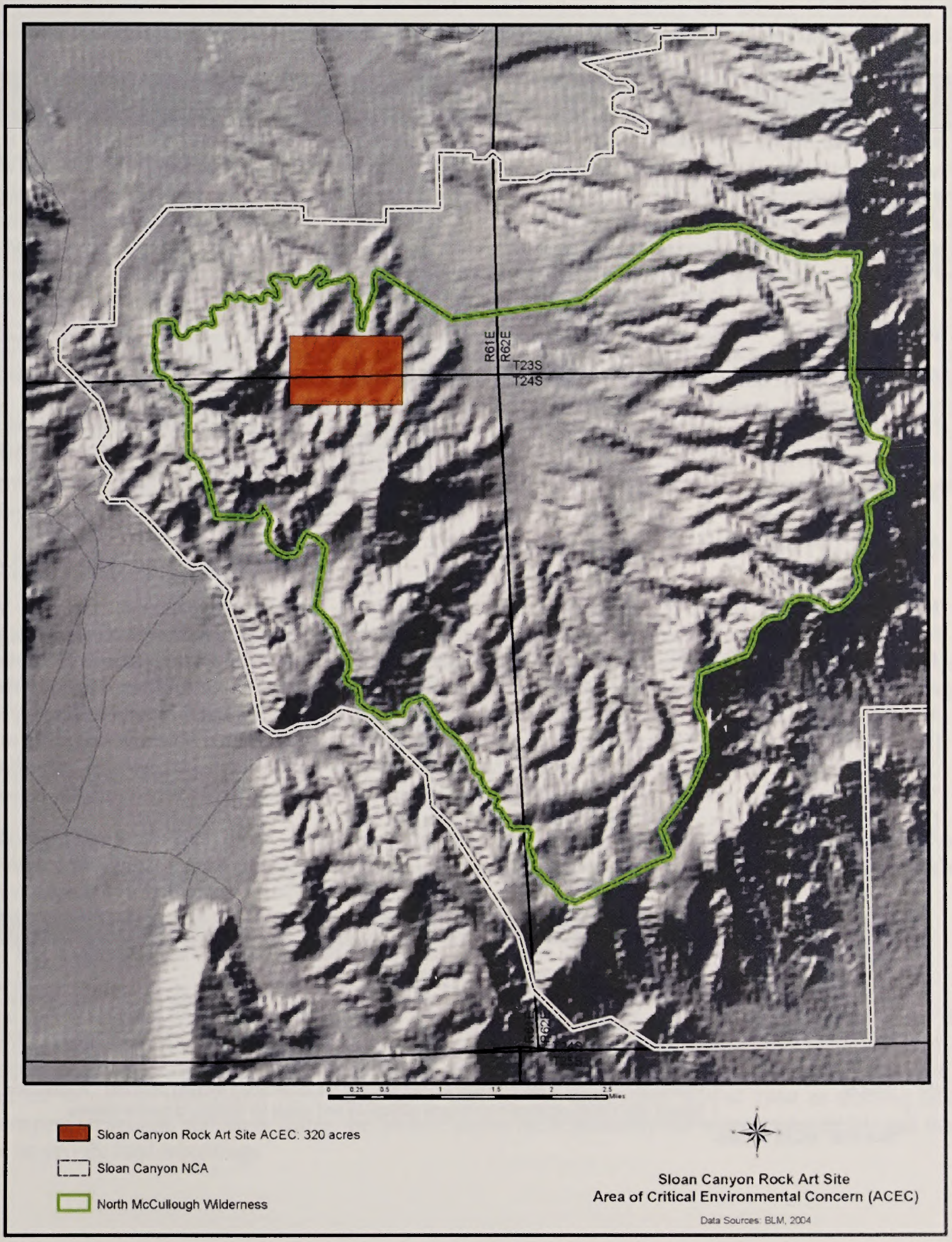
The 320-acre Sloan Canyon Rock Art District Area of Critical Environmental Concern (ACEC) was established by the *Las Vegas RMP* (BLM 1998a) to protect the significant prehistoric habitation and rock art values of the petroglyph area (Figure 3.5). The *Las Vegas RMP* provided further management direction by making this ACEC a right-of-way (ROW) exclusion area, closing the area to locatable minerals, salables, and solid leases, and requiring reclamation of temporary roads.

3.7 Visual Resources

The Sloan Canyon NCA is situated in a rugged, desert mountain range rising from the Las Vegas, Eldorado, and Hidden Valleys. Scenic resources were identified in the Sloan Canyon NCA Act as one of the purposes of the NCA, and the importance of this landscape is directly tied to its proximity to Las Vegas, one of the largest metropolitan areas in the Mountain West. The natural character of the NCA directly contrasts with the highly modified human environments to the north, and the scenic quality is an important component of the setting for residents in the City of Henderson and the southern Las Vegas Valley.

The pristine quality of the visual resources in many portions of the NCA is reflective of its rugged and undeveloped nature, however some areas of disturbance and development can be found. The northern portions of the NCA are highly visible from the adjoining City of Henderson and the entire Las Vegas Valley. This area is largely undisturbed, with several minor roads and ROWs slightly modifying the landscape. Along the southern and eastern edges of the NCA, the landscape preserves scenic areas highly visible from U.S. Highway 95, with only some visible landscape modifications. The western and northern edges of the NCA are partly visible from the Interstate 15 corridor and South Las Vegas Boulevard. A moderate level of landscape modification is visible in this area because of the presence of vehicle routes.

Figure 3.5. Sloan Canyon Rock Art Site ACEC



The southern portion of the NCA is essentially unmodified, with a handful of power lines outside the NCA on the east side providing the only significant landscape modification. Table 3.3 lists types of landscape modifications and describes existing modifications within the NCA.

Table 3.3. Existing Landscape Modifications

Type of Landscape Modification	Description of Existing Modifications
Roads and trails	Numerous existing routes visible as landscape modifications Roads concentrated in the northeastern portion of the NCA; other minor routes in and adjacent to other portions of the area
Communication sites	Three ROWs for communication sites situated in the northern portion of the NCA, along the ridgeline of the McCullough Range Landscape modification noticeable because of high visibility of sites
Power lines	Numerous power lines in and adjacent to the NCA Power lines concentrated in northern and eastern areas of the NCA Significant landscape modification in some areas
Wildlife waters	Two constructed wildlife waters located in the NCA, one of these within the North McCullough Wilderness Landscape modification minimal because of construction techniques and camouflaging
Mine sites	Numerous mining claims once existed throughout the NCA; most of these have now been abandoned Landscape modification due to mining efforts varies from minimal to noticeable
Litter	Temporary landscape modification attributed to litter in the northeastern portion of the NCA is significant (although litter would not typically be considered a landscape modification, the presence of extensive amounts of litter in portions of the NCA constitutes a longer term landscape modification than typical litter issues)

Source: BLM 2004d.

3.7.1 Current Management

BLM manages the scenic qualities of the NCA using Visual Resource Management (VRM). Visual resources in the NCA are currently managed according to the direction and classes prescribed through the *Las Vegas RMP* (BLM 1988a) and as indirectly modified by the Clark County Act, Title II ("Wilderness Areas"), which changed the VRM classification of the Wilderness. The VRM objective from the *Las Vegas RMP* (BLM 1988a) is general and limits future impacts on the visual and esthetic character of the public lands. The current VRM classes within the planning area and associated objectives specific to each class are listed in Table 3.4. Please note that the *Las Vegas RMP* only established specific objectives for VRM Classes II, III, and IV, and that the specific objective for Class I is interim until the Record of Decision (ROD) associated with this RMP has been issued.

Table 3.4. Visual Resource Management Classes and Objectives

VRM Class	Management Objective
VRM I	Preserve the existing character of the landscape. Authorized actions may not modify existing landscapes or attract the attention of casual viewers.
VRM II*	Retain the landscape's existing character. Authorized actions may not modify existing landscapes or attract the attention of casual viewers.
VRM III*	Partially retain the existing character of the landscape. Authorized actions may alter the existing landscape, but not to the extent that they attract or focus attention of the casual viewer.
VRM IV*	Provide for activities involving major modifications of the landscape's existing character. Authorized actions may create significant landscape alterations and would be obvious to casual viewers.

*Source: BLM1998a.

3.7.2 Visual Resource Inventory

A Visual Resource Inventory (VRI) of the NCA was conducted during the winter of 2003, and the resulting inventory classes are shown in Figure 3.6 (BLM 2004d). The map also shows the Scenic Quality Rating Units (1–15) on which the VRI classes were based. A Scenic Quality Rating Unit is a portion of the landscape that displays primarily homogeneous visual characteristics of the basic landscape features, such as land and water forms, vegetation, and structures (BLM 2004d). Findings of the inventory indicate that large portions of the NCA contain little change to the existing landscape and would be conducive to management designed to retain that character. Some portions of the NCA contain moderate or extensive landscape modifications that detract from scenic quality. Such conditions make it challenging to conserve scenic resources. In these areas, opportunities may exist for restoration and mitigation of disturbances. Other areas of the NCA are so seldom seen that their visual resources do not appear to require intensive management. Nevertheless they may be easily managed to retain existing landscape character and conserve scenic resources despite VRI ratings of Class III or IV.

The inventory confirmed that the NCA contains large areas of undisturbed desert landscape that can continue to be conserved for scenic quality. Many of the areas inventoried provide scenic backdrops for the urban interface, whereas other portions of the NCA contain remote wilderness landscapes. A small portion of the NCA has lower visual appeal but remains suitable for a wider variety of multiple uses and provides ample opportunity for restoration of disturbance. The Sloan Canyon NCA contains a wide variety of high-quality visual resources that can be managed to maintain and improve on existing conditions.

3.8 INTERPRETATION

To date, no interpretive materials or plans specific to the Sloan Canyon NCA have been developed. A comprehensive interpretive program, based in part on information in this PRMP and Appendix F, Sloan Canyon National Conservation Area Interpretive Strategy and Environmental Educational Strategy, would be developed subsequent to completion of the RMP.

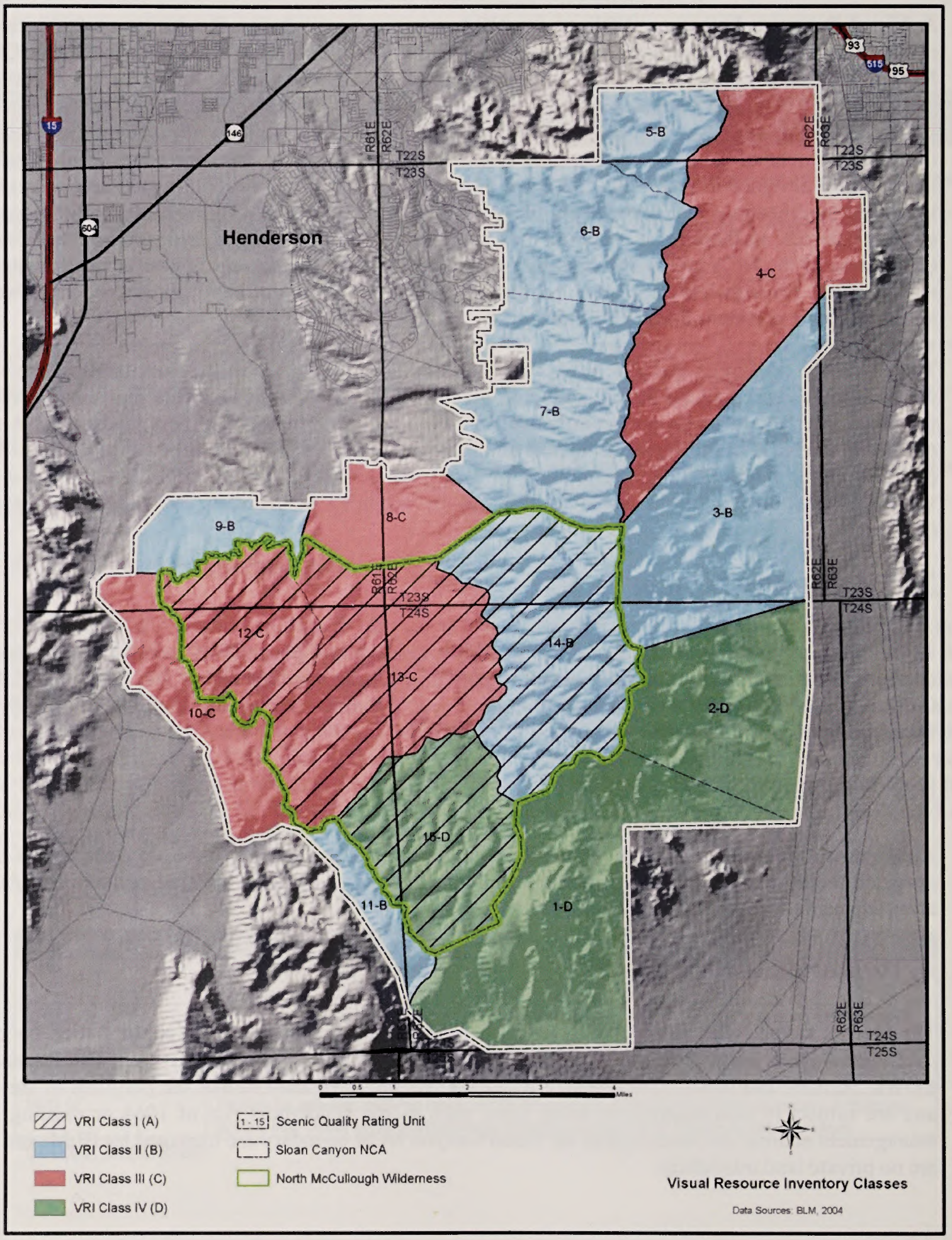
3.9 FACILITIES

Although the Sloan Canyon NCA offers various recreational opportunities, there are currently no BLM-provided facilities. Consequently, recreational users have created small, scattered pullouts and parking areas adjacent to frequently visited locations.

3.10 LANDS AND REALTY

The Sloan Canyon NCA Act withdraws the NCA from all forms of entry and appropriation under the public lands laws while protecting valid existing rights, such as power line ROWs. The issuance of ROWs, permits, and leases may continue under the Act provided they further the purposes of the NCA and are subject to restrictions from other laws, such as the Wilderness Act of 1964 or existing BLM management actions. All lands within the Sloan Canyon NCA boundary are managed by BLM, and there are no private land inholdings.

Figure 3.6. Visual Resource Inventory Classes



3.10.1 Existing Rights-of-Way

According to the *Rights-of-Way Report* (BLM 2004c), 44 valid existing ROWs were on file when the NCA was designated. There are also several pending applications that were filed before the designation, and they would be processed to completion. The ROWs are primarily for power lines, flood control facilities, access roads, and communication sites, and are confined primarily to the northern and eastern portions of the NCA (Figure 3.7).

The Nevada Power Company holds the majority of the ROWs, which are for power lines and supporting infrastructure. The City of Henderson is the second-largest holder of ROWs, which are mainly for flood control and road access. Telecommunication companies and federal, State, local, and private agencies hold the remaining ROWs. Rental fees associated with these ROWs generate more than $536,000 annually (BLM 2004c). The ROWs are discussed below by category.

3.10.1.1 Power Lines and Access Roads

All power line ROWs are held by the Nevada Power Company for service to the surrounding area and to the communication sites. The ROWs are used for aboveground and underground facilities and to accommodate supporting infrastructure. A majority of these ROWs are issued for perpetuity, except for three power lines to the communication sites. Modification to these ROWs requires an approved ROW amendment.

3.10.1.2 Flood Control Facilities

The City of Henderson holds all the ROWs for flood control, including two detention and two debris basins. Several flood control facilities are outside the NCA, adjacent to its boundaries. Clark County Regional Flood Control holds a ROW for a rain gauge within the NCA.

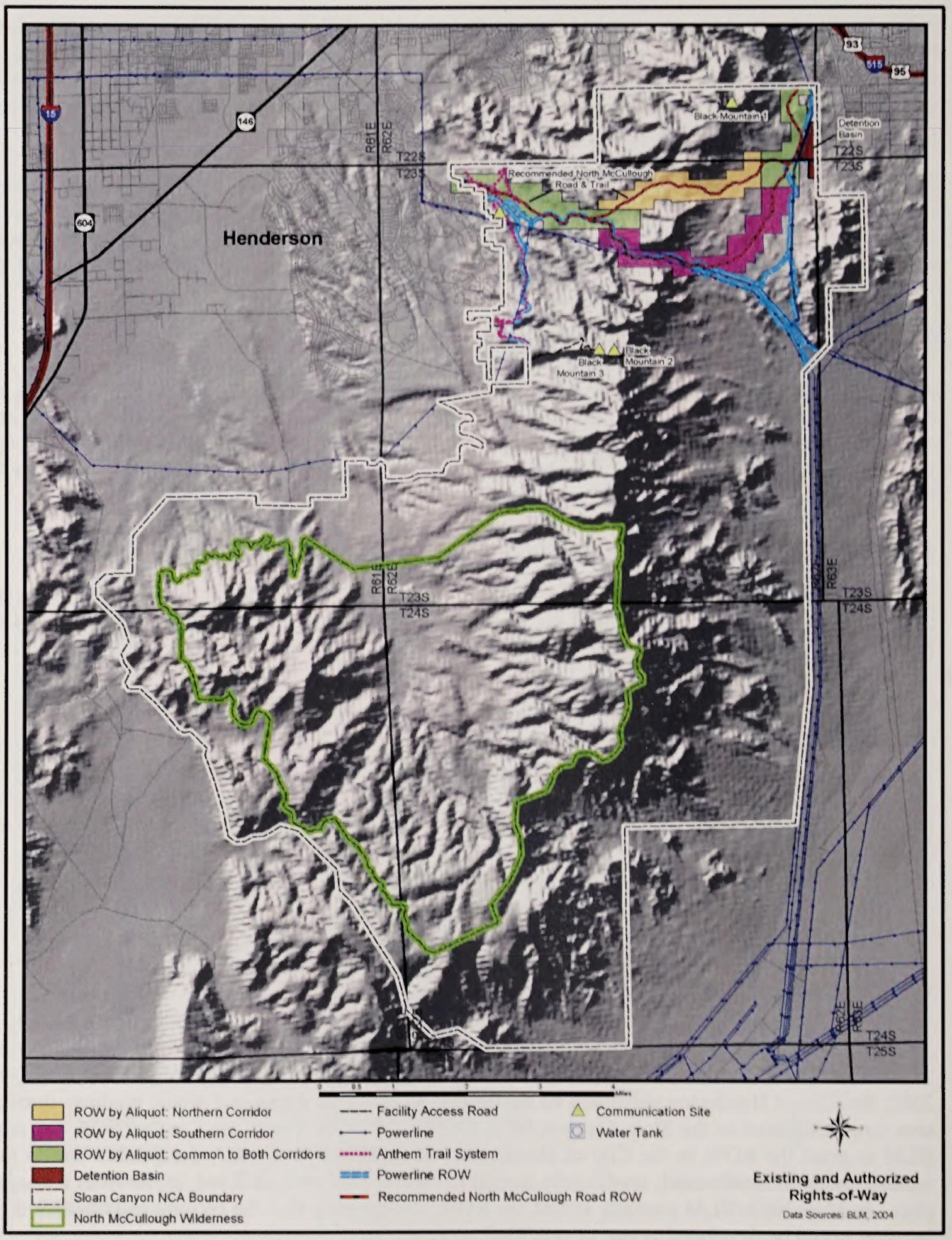
3.10.1.3 Communication Facilities

Three communication sites are located within the NCA: Black Mountain Upper (BM-1), Black Mountain 2 (BM-2), and Black Mountain 3 (BM-3). Each communication site contains multiple ROWs and/or leases for individual communication facilities. The holder/lessee can sublease to other parties the use of a facility for communication purposes without prior written consent of the authorized officer, if so provided by terms and conditions of the grant (43 CFR 2801.1-1[2][f]). The Facility Manager remains the responsible ROW holder, in accordance with the Black Mountain Site Communication Plan.

3.10.2 City of Henderson Rights-of-Way

The City of Henderson holds ROWs for two roads and two trails. The ROW for the existing road is for access to a flood control facility, and two new trail ROWs were granted as part of the Sloan Canyon NCA Act. The Sloan Canyon NCA Act directed BLM to grant the City of Henderson a ROW for the Anthem Trail (N-76312) and the North McCullough Road and Trail (BLM Case File No. N-65874). In September 2002, the City of Henderson submitted an application to construct a trail and scenic roadway through the area now designated as the Sloan Canyon NCA (ROW N-65874). The Sloan Canyon NCA Act required BLM to grant the ROW to the City of Henderson within 180 days of NCA designation and to make a recommendation for the road, unofficially named the North McCullough Road, in the NCA management plan. In May 2003, BLM partially issued the ROW, recognizing that the recommendation for the road location would be developed as part of this RMP process.

Figure 3.7. Existing and Authorized Rights-of-Way



Once the recommendation is finalized through the ROD, the City of Henderson would identify a specific alignment and amend ROW application N-65874 to include road design details and visitor facilities, such as parking areas. Additional environmental reviews would be required for this detailed planning.

ROW application N-65874 contains two proposed corridors for the location of the North McCullough Road and Trail: the Northern Corridor and the Southern Corridor (Figure 3.7). For analysis purposes, potential roadway alignments within each corridor have been proposed based on numerous field visits and topography evaluation.

3.10.2.1 Northern Corridor

The Northern Corridor enters the NCA from the east along Foothills Drive and then turns south for approximately 1 mile. The corridor then turns west and follows a major wash for roughly 1.5 miles until it crests the first saddle. After the first saddle, the alignment drops into a widened valley to crest another two hills.

Saddle along North Corridor

The alignment within the corridor was chosen to reduce the cut and fill required to maintain a reasonable grade along the roadway. After the third crest, the corridor follows an existing roadway for approximately .5 miles and then runs along a ridge with existing transmission poles for another 1.5 miles into the Anthem Community, adjacent to the Del E. Webb Middle School.

3.10.2.2 Southern Corridor

Power line along southern corridor

The Southern Corridor enters the NCA in the same location as the Northern Corridor, and both follow the same north-south alignment for approximately 1.5 miles until the two corridors split. The Southern Corridor continues through a highly braided flood plain for nearly 2 miles, until it aligns with an existing power line road. The road then follows the power line road for 1 mile up a steep grade of nearly 12 percent. It then crests the saddle to continue down a steep grade within a major wash for 2 miles and merges with the Northern Corridor. From this point, it too runs on the existing power line road for about .5 miles, then runs along a ridge with transmission poles for another 1.5 miles into Anthem Community, adjacent to the Del E. Webb Middle School.

3.10.2.3 Conceptual Design

For analysis purposes, conceptual designs have been prepared, to equal levels, for both alignments. The design efforts included generating horizontal and vertical alignments, developing typical cross-sections, establishing cut/fill limits and quantities, calculating potential disturbed area, and identifying major drainage crossings.

Unauthorized Uses

Several unauthorized uses were identified as part of the *Rights-of-Way Report* (BLM 2004c). A telecommunications facility is located in an area where a ROW has expired, and the original lessee has

since vacated the area. The Nevada Power Company has an unauthorized use within an existing ROW (N-59499) and is in the process of filing an amendment to resolve the trespass. Because the public land boundary for the NCA is not clearly marked, unauthorized uses such as illegal motorized vehicle travel and dumping could occur in the future.

3.10.3 Filming and Photography

Historically no commercial movie filming or photography has been authorized within the NCA boundary.

3.11 Transportation (Registered Motorized Vehicles)

The NCA is located in the rapidly growing metropolitan area of Clark County, Nevada, a region supported by an urban transportation network that serves the Las Vegas Valley. The NCA is flanked by Interstate 15 to the west, Interstates 215 and 515/Highways 93 and 95 to the north, and U.S. Highway 95 to the east. Figure 3.8, Transportation System Map, shows the NCA in the context of the regional transportation network. New development is occurring along the northern and western NCA border in the City of Henderson, and it is likely that local traffic patterns could change in the future. Figure 3.9, Roads and Routes Proposed for Construction and Registered Motorized Vehicle Designation Map, shows the current roads within the NCA, all of which are dirt and unmaintained except for those maintained by ROW holders. At this time, BLM has not designated any roads within the NCA as open to the public.

3.12 Vegetation Management

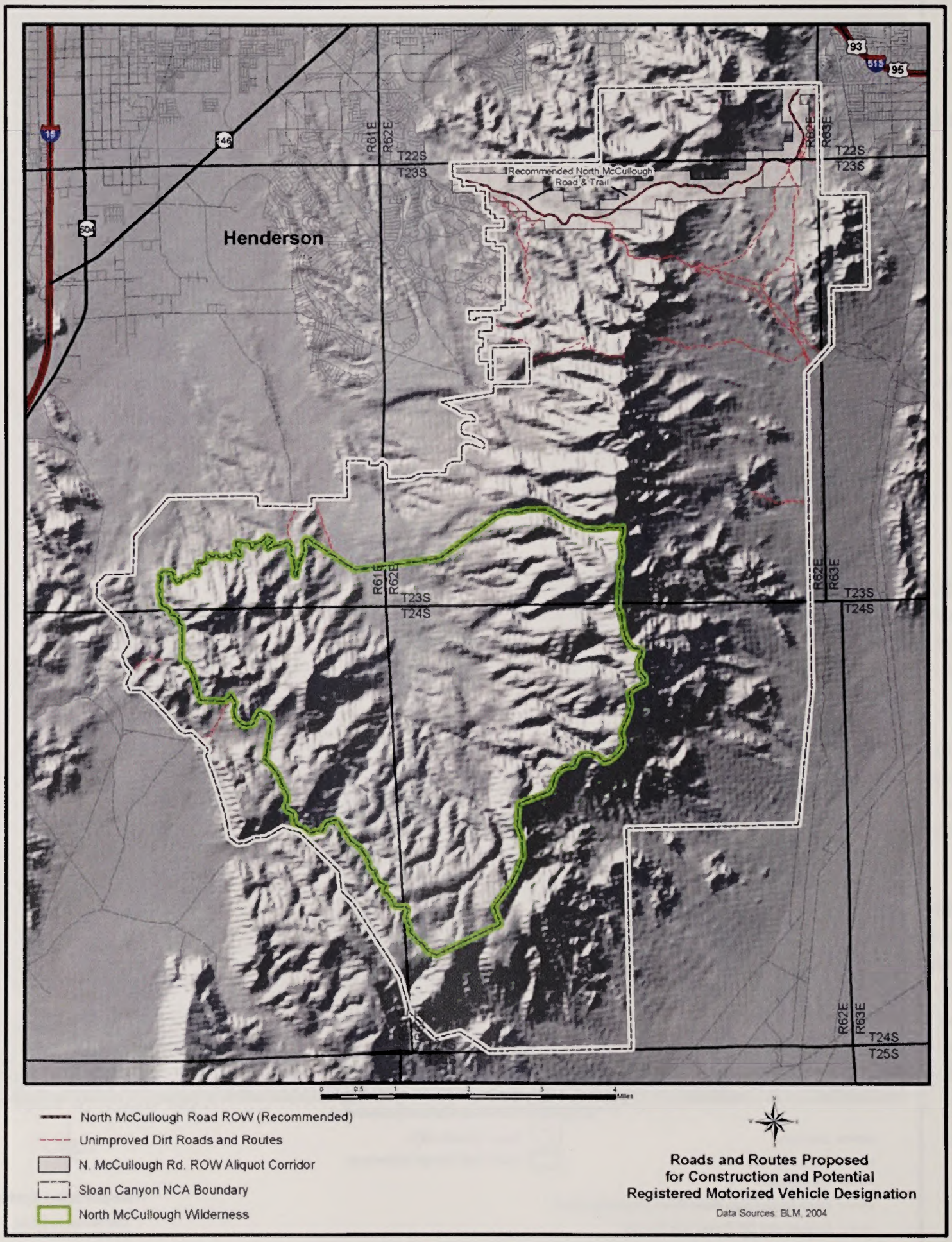
Vegetation within the Sloan Canyon NCA is diverse and representative of the Mojave Desert ecosystem, which covers the southern portion of Nevada, southwestern Utah, southeastern California, and extends into northwestern Arizona. The Mojave Desert is the smallest of the four North American deserts and is considered intermediate both geographically and floristically of the Great Basin Desert to the north and the Sonoran Desert to the south (MacMahon 1997).

The vegetation associations within the Sloan Canyon NCA are the result of the interaction between soils, geology (bedock and surficial), climate, geomorphology, landforms, and morphometry (elevation, aspect, and slope). Typical to the region, the area is dominated by sparse desert vegetation associated with bajadas, inset fans, and rocky outcrops. There are no permanent streams within the NCA; however many of the dry washes show evidence of past surface water and debris flow.

The Mojave Desert scrub community in the Sloan Canyon NCA is primarily composed of low, widely spaced shrubs, including the creosote bush (*Larrea tridentata*) and the white bursage (*Ambrosia dumosa*). Other affiliated community shrubs include ephedra (*Ephedra* spp.); brittlebrush (*Encelia virginensis*); burro bush (*Hymenoclea salsola*); sweetbush, or bebbia (*Bebbia juncea*); and desert saltbush (*Atriplex polycarpa*). Characteristic species associated with the Mojave Desert include Mojave yucca (*Yucca schidigera*), teddybear cholla (*Opuntia bigelovii*), and hedgehog cacti (*Echinocereus* spp.). Short-lived annual and perennial wildflowers appear at the lower elevations in late March, April, and May, when prompted by winter rains.

Figure 3.8. Transportation System

Figure 3.9. Roads and Routes Proposed for Construction and Potential Registered Motorized Vehicle Designation



3.12.1 Vegetation Associations

Four vegetation associations are represented within the Sloan Canyon NCA: (1) volcanic basalt slope associations, (2) moderate creosote (greater than 30 percent cover), (3) sparse creosote/bursage mix, and (4) desert wash associations (BLM 2004e). Vegetation association descriptions are listed below. The distribution of vegetation associations within the NCA is presented in Figure 3.10.

3.12.1.1 Volcanic Basalt Slope Association

The volcanic basalt slope association is found on the steeper north-facing slopes of the NCA. This association contains basalt rock outcrops, and the plant species composition is highly variable. Creosote is present in most of this vegetation association; however, north-facing slopes may lack creosote canopy cover. Shrub species present include creosote (*Larrea tridentata*), ephedra (*Ephedra spp.*), prickly pear (*Opuntia spp.*), and perennial and annual grasses and forbs.

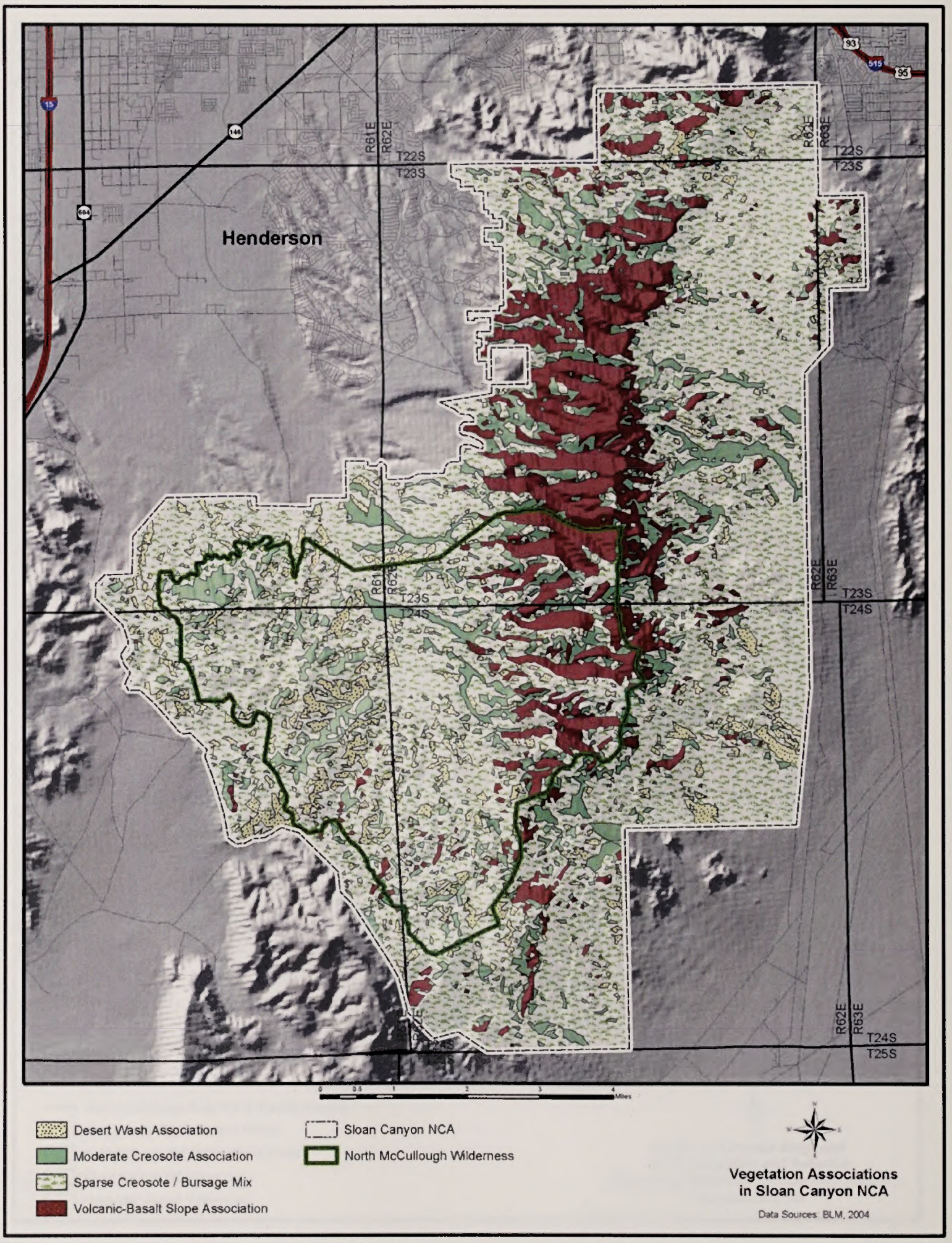
3.12.1.2 Moderate Creosote

The moderate creosote association is dominated by creosote (greater than 30 percent canopy cover) and also contains bursage (*Ambrosia dumosa*), ephedra (*Ephedra spp.*), and in some areas a significant amount of Cholla cactus (*Opuntia spp.*). The moderate creosote association has a limited distribution within the NCA and may be associated with increased soil moisture availability. Saltbush (*Atriplex spp.*) and perennial and annual grasses and forbs are also associated with the moderate creosote association.

3.12.1.3 Sparse Creosote/Bursage Mix

The sparse creosote association is the most abundant association within the Sloan Canyon NCA. The sparse creosote vegetation association is an open sparse plant association dominated by creosote bush (*Larrea tridentata*). Ephedra (*Ephedra*), bursage (*Ambrosia dumosa*), and saltbush (*Atriplex spp.*) are also common shrub species in the sparse creosote association. The canopy cover of vegetation in this association is typically less than 30 percent, and desert pavement dominates some areas. Annual and perennial grasses and forbs are also present.

Figure 3.10. Vegetation Associations in Sloan Canyon NCA



3.12.1.4 Desert Wash Associations

Desert washes within the Sloan Canyon NCA are ephemeral watercourses that are dry most of the year. The increased quantity of available water, even for brief periods, in desert washes supports vegetation that differs from that of adjoining plant associations in species composition, structure, and soil moisture availability.

Most occurrences are at elevations lower than 5,000 feet within sandy arroyos, washes, and subirrigated bajadas. Dominant species include cat claw (*Acacia greggii*), desert willow (*Chilopsis linearis ssp. arcuata*), Mormon tea (*Ephedra spp.*), and indigo bush (*Psorothamnus fremontii*).

3.12.2 Special Status Species

Special Status Species are those species that are either Listed, Candidates for Listing, or identified by BLM as being important for consideration in management actions. Within the Sloan Canyon NCA, the rosy two-tone beardtongue (*Penstemon bicolor* ssp. *roseus*), white-margined beardtongue (*Penstemon albomarginatus*), and Blue Diamond cholla (*Opuntia whipplei* var. *multigeniculata*) have habitats that have been identified within or adjacent to Sloan Canyon NCA (Bostick 1973, Marrs-Smith personal communication 2004 [Table 3.5]).

Figure 3.11 illustrates the results of a GIS model developed as part of this planning process to determine potential areas within the Sloan Canyon NCA where these species could occur. The potential habitat areas are more likely to contain possible populations of these species, however on the basis of the broad criteria used to develop these models, other areas of the NCA also have the potential for populations of these species.

Table 3.5. Flora Potentially Occurring in Sloan Canyon NCA

Common Name	Scientific Name	Characteristics	NV BLM Sensitive	USFWS/ESA Candidate	NNHP Sensitive MSHCP Watch	MSCHP-Covered	State-Listed Critically Endangered
Blue Diamond cholla	Opuntia whipplei var. multigeniculata	Occurs mostly on north-facing slopes and exposed ridges.	•	•		•	•
Rosy Two-tone beardtongue	Penstemon bicolor ssp. roseus	Occurs on rocky calcareous, granitic, or volcanic soils in washes, roadsides, scree at outcrop bases, rock crevices, or similar places receiving enhanced runoff in the creosote-bursage, blackbrush, and mixed-shrub zones.	•	•	•		

Common Name	Scientific Name	Characteristics	NV BLM Sensitive	USFWS/ESA Candidate	NNHP Sensitive MSHCP Watch	MSCHP-Covered	State-Listed Critically Endangered
White-Margined beardtongue	Penstemon albomarginatus	Occurs on sand deposits on leeward side of dry lakebeds between 1,500 and 3,600 feet elevation, in the wash bottoms of outwash canyons, and occasionally on slopes above them.	•	•		•	

NV BLM Sensitive—Nevada Bureau of Land Management Plan species that may occur within NCA.

USFWS/ESA Candidate—U.S. Fish and Wildlife Endangered Species Act Candidate Species for Listing.

NNHP Sensitive MSCHP Watch—Nevada Natural Heritage Program Plant Species that may occur within NCA.

MSHCP Covered—(Clark County) Multiple Species Habitat Conservation Plan species within ecosystems of the Sloan Canyon NCA.

State-Listed Critically Endangered—Critically Endangered and Threatened With Extinction-listed by the Nevada State Forester Pursuant to NRS 527.270.

Source: BLM 2004c.

3.12.3 Noxious and Invasive Weeds

The spread of noxious and invasive weed plant species contributes to the loss of habitat productivity, reduced water quality and quantity, reduced structural and species diversity, and loss of wildlife-specific habitat. In some instances, these species are hazardous to human health and welfare, as emphasized in the Federal Noxious Weed Act (Public Law 93-629) and Executive Order 13112 Invasive Species. To minimize the potential of non-native seeds being brought into the area, NDOW has issued guidance to hunters on the use of animal feed (NDOW 2004b).

Most if not all non-native plant infestations begin as small outbreaks in disturbed areas, such as utility corridors, trails, range improvement footprints, roadsides, ROWs, and mining disturbances. Seeds of non-native plants may have been transported to the area in feed for pack animals, recreation use, revegetation, grass mixtures, or blown in from distant sources. As non-native plants find disturbed areas with no natural competition, they quickly spread, overtaking native vegetation and reducing the biological diversity and ecologic viability of the ecosystem. Invasive species such as red brome (*Bromus madritensis)* are widespread throughout the NCA and could alter wildland fire cycles (Simonin 2001).

Although a survey has not been completed, an immediate concern is the potential noxious species invasion of Sahara mustard (*Brassica tournefortii*), which utilizes sandy soils at lower elevations, and tamarisk (*Tarmarix spp.*), which could occupy wash bottoms. Figure 3.12 illustrates the results of a GIS model developed as part of this planning process to determine potential areas within the Sloan Canyon NCA where these species could occur.

Figure 3.11. Potential Habitat for Special Status Plant Species

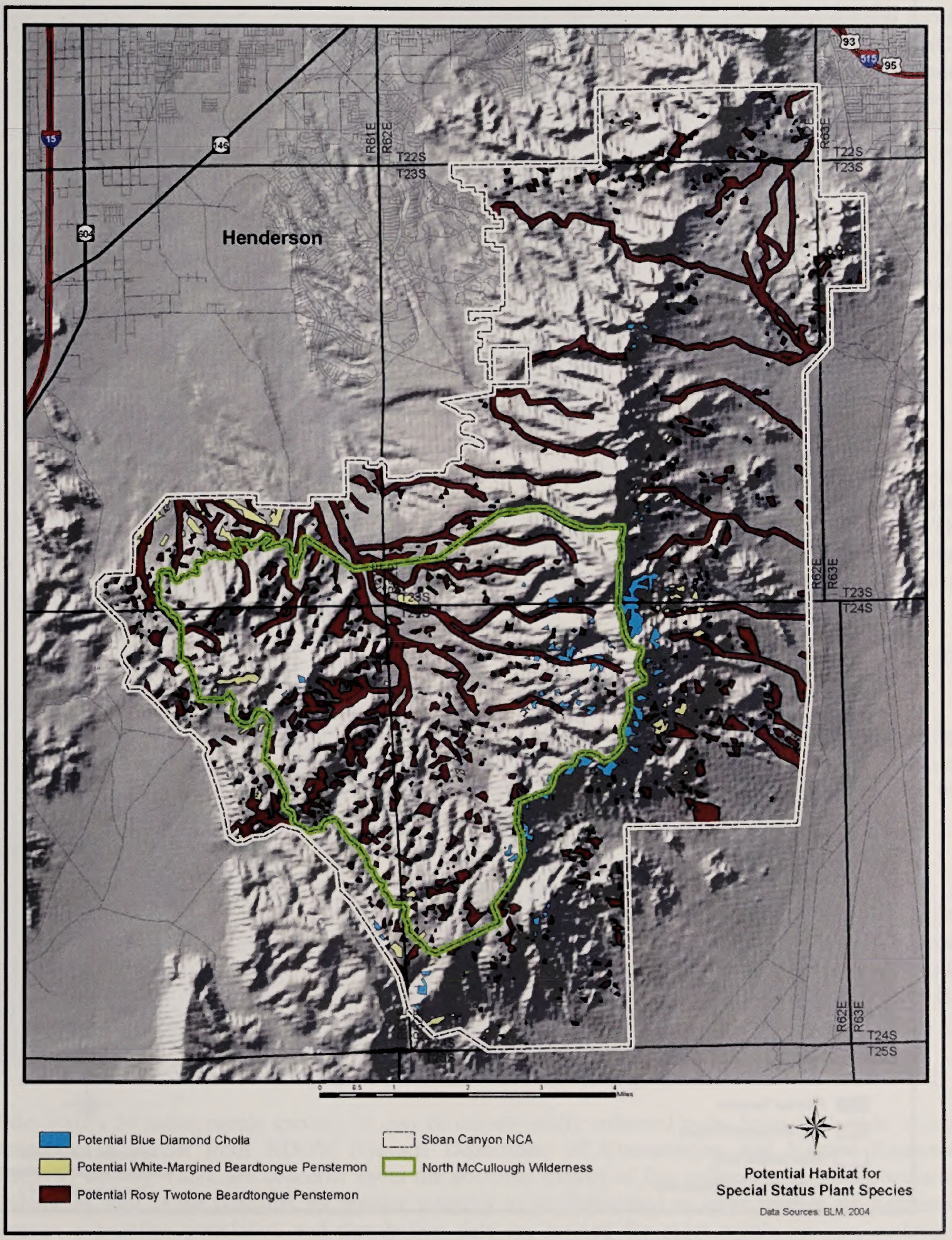
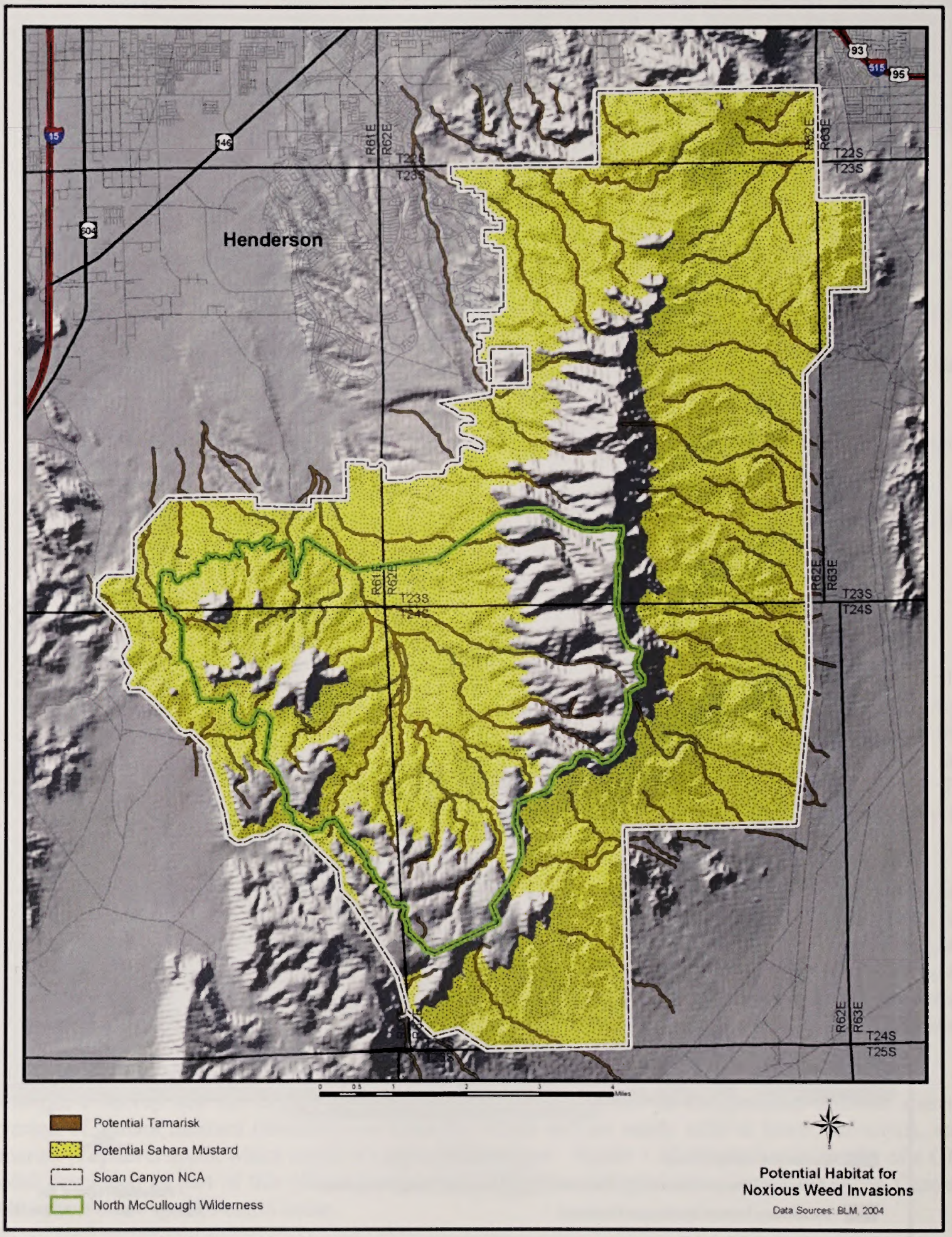


Figure 3.12. Potential Habitat for Noxious Weed Invasions



3.13 WILDLIFE MANAGEMENT

Although only one ecosystem type, Mojave Desert scrub, is represented in the NCA, it supports a variety of wildlife species. To date the actual number of wildlife species occurring within the Sloan Canyon NCA is unknown, however vertebrate wildlife species found within the NCA's borders represent three major classes: reptiles, birds, and mammals. Because there are no natural perennial water sources, no known fish or mollusks species occur. One amphibian species, red spotted toad (*Bufo punctatus*), may be found in temporary pools near the wildlife water development (guzzler) (D.B. Hardenbrook personal communication 2005).

The primary natural factors that influence populations and distribution for wildlife are water availability, vegetation, topography, and weather patterns. Water supplies, both open and below ground, are limited within the NCA, with springs and seeps serving as areas of habitat concentrations. The Sloan Canyon NCA is composed of igneous rocks, which provide small caves that act as habitat or escape cover for a variety of species. In addition to the natural factors in Sloan Canyon, human presence and activities such as recreation use impact wildlife distribution.

3.13.1 Regulatory Framework

The NDOW is responsible for the direct management of wildlife populations within the Sloan Canyon NCA. The BLM Las Vegas Field Office is responsible for managing the habitat but also performs an integral role in sustaining and ensuring the ecological health and viability of wildlife populations. The USFWS provides regulatory oversight for all species that are Listed, Proposed for Listing, or Candidates for Listing as Threatened or Endangered under the ESA, and also administers the Migratory Bird Treaty Act (MBTA), which protects migratory bird species.

The *Las Vegas RMP* (BLM 1998a) and the *Desert Tortoise Recovery Plan* (USFWS 1994) currently provide the BLM Las Vegas Field Office up-to-date direction for habitat and wildlife management.

The Sloan Canyon NCA Act requires BLM to provide access for installing, repairing, maintaining, and reconstructing water developments, including water guzzlers, that would enhance the NCA by promoting healthy, viable, and more widely distributed wildlife populations. Currently the NCA contains two big game guzzlers, with another directly adjacent to the NCA southeastern boundary.

3.13.1.1 Hunting

Annually, NDOW issues limited entry permits for the hunting of bighorn sheep in the North and South McCullough Range, which includes the NCA (NDOW 2003). Bighorn sheep hunting licenses are issued based on population dynamics and recommendations from NDOW and County Wildlife Advisory Boards. NDOW also permits recreational hunting for bobcats and mountain lions, rabbits, dove, quail, and coyote, as well as trapping for coyote, bobcat, gray fox, and kit fox.

3.13.1.2 Reptile Collecting

Of the State's 54 native reptile species, 36 may be commercially collected in the State of Nevada through issuance of a permit from NDOW (Nevada Department of Conservation and Natural Resources [NDCNR] 2004a). There are concerns about the potential impact of this collection on total population numbers, as well as the potential for species integrity to be diminished as large reptiles are harvested; however, a baseline population and distribution data are lacking for most reptile species, making it

difficult to determine long-term effects of commercial collecting and unlimited reptile harvesting on reptile populations (NDCNR 2004a).

3.13.1.3 Migratory Birds

The United States has ratified international conventions concerning the protection of migratory birds, as implemented by the MBTA of 1918 (16 United States Code [U.S.C.] 703-711). The MBTA prohibits "taking," which is the killing, possession, or transport of any migratory bird or their eggs, parts, or nests, except as authorized by a valid permit. These actions may be permitted only for educational purposes, and harvest is limited to levels that prevent overutilization. Executive Order 13186, Responsibilities of Federal Agencies to Protect Migratory Birds, was issued in January 2001 and emphasizes that federal actions are subject to the MBTA and directs federal agencies (such as BLM) to evaluate the effects of agency actions in National Environmental Policy Act documents like this Final EIS.

Under the MBTA, permits can be issued by USFWS for the intentional take of specific birds and nests that have been identified before application for the permit; however, no permits can be issued for take that is incidental to the action being taken (i.e., incidental take). All native bird species likely to be found within the NCA are protected under the MBTA, and any incidental take of these protected species would constitute a violation of the MBTA.

3.13.2 Potential Wildlife Species

3.13.2.1 Mammals

Small mammals expected to occur within the NCA include the black-tailed jackrabbit (*Lepus californicus*), desert cottontail (*Sylvilagus audubonii*), desert kangaroo rat (*Dipodomys deserti*), rock squirrel (*Spermophilus variegatus*), and antelope ground squirrel (*Ammospermophilus leucurus*). Bat species such as the big free-tailed bat (*Tadarida macrotis*) and Brazilian free-tailed bat (*Tadarida brasiliensis*) are also known to occur in small caves of the NCA (Nevada Bat Working Group 2002). Larger mammal species include the coyote (*Canis latrans*), grey fox (*Urocyon cinereoargenteus*), kit fox (*Vulpes macrotis*), desert bighorn sheep (*Ovis canadensis nelsoni*), mule deer (*Odocoileus hemionus hemionus*), bobcat (*Lynx rufus*), and mountain lion (*Felis concolor*).

3.13.2.2 Birds

Bird species expected to occur within the NCA include the black-throated sparrow (*Amphispiza bilineata*), cactus wren (*Campylorhynchus brunneicapillus*), black-chinned hummingbird (*Archilochus alexandri*), Anna's hummingbird (*Calypte anna*), broad-tailed hummingbird (*Selasphorus platycercus*), Gambel's quail (*Callipepla gamebelii*), mourning dove (*Zenaida macroura*), greater roadrunner (*Geococcyx californianus*), phainopepla (*Phainopepla nitens*), loggerhead shrike (*Lanius ludovicianus*), red-tailed hawk (*Buteo jamaicensis*), and Swainson's hawk (*Buteo swainsoni*).

3.13.2.3 Reptiles

Reptiles are the most common and diverse species that occurs within the NCA. Lizards that are expected to occur within the NCA include the desert iguana (*Dipsosaurus dorsalis*), chuckwalla (*Sauromalus obesus*), western banded gecko (*Coleonyx variegatus*), Great Basin collared lizard (*Crotaphytus bicinctores*), side-blotched lizard (*Uta stansburiana*), Gila monster (*Heloderma suspectum*), desert horned lizard (*Phyrnosoma platyrhinos*), long-nosed leopard lizard (*Gambelia wislizenii*), and the long-tailed brush lizard (*Urosaurus graciosus*). Snakes expected to occur include the coachwhip (*Masticophis flagellum*), Mojave rattlesnake (*Crotalus scutulatus*), sidewinder (*Crotalus cerastes*), speckled rattlesnake

(*Crotalus mitchelli*), western patch-nosed snake (*Salvadora hexalepis*), long-nosed snake (*Rhinocheilus lecontei*), and the spotted leaf-nosed snake (*Phyllorhynchus decurtatus*). The desert tortoise (*Gopherus agassizii*) is the only tortoise located within the NCA.

3.13.3 Special Status Species

Wildlife Special Status Species include species Federally Listed as Threatened and Endangered, Proposed for Listing, or Candidates for Listing under the ESA. They also include species designated by each BLM State Director as Sensitive and those listed, or proposed for listing, by a State in a category implying potential endangerment or extinction. BLM is mandated to protect and manage Threatened, Endangered, Candidate, Proposed, and BLM Sensitive wildlife species and their habitat. BLM is also required to protect and manage Sensitive species jointly identified with the appropriate State agency. The State of Nevada employs the Nevada Natural Heritage Program's (NNHP) list for an official list of State Sensitive, Threatened, or Endangered wildlife species. Table 3.6, Fauna Special Status Species Potentially Occurring in Sloan Canyon NCA, presents the lists of species that could occur within the NCA that are either federally protected, BLM Sensitive species, part of the NNHP, or included in the *Clark County MSHCP* (CCDCP 2000). The species listed in Table 3.6 are based on county-level information and existing survey data, and the NCA may not contain habitat for all the species listed.

3.13.3.1 Federally Protected Species

The BLM is responsible for the protection of Federally Listed, Proposed for Listing, or Candidates for Listing species in the NCA, which includes the protection of habitat. Presently, the Mojave population of the desert tortoise (*Gopherus agassizii*) is listed as Threatened and is the only federally protected species located in the NCA (USFWS 2003). The USFWS has developed a recovery plan for the species and has identified and designated critical habitat within the BLM Las Vegas Field Office jurisdiction. None of this critical habitat lies within the NCA boundaries (USFWS 1994).

3.13.3.2 BLM Sensitive Species

BLM Sensitive species are not Federally Listed, Proposed, or Candidate species or State of Nevada-listed species; however, the agency's policy is to provide these species with the same level of protection provided for Candidate species. This ensures that actions authorized, funded, or carried out by BLM do not contribute to the need for the species to become Listed. According to BLM policy (BLM manual 6840.06 E), a species may be listed as Sensitive if it—

- Could become endangered or extirpated from a State, or within a significant portion of its range, in the foreseeable future.
- Is under status review by the USFWS.
- Is undergoing significant current or predicted downward trends in habitat capability that would reduce a species' existing distribution and/or population or density such that Federally Listed, Proposed, Candidate, or State-listed status may become necessary.
- Typically consists of small and widely dispersed populations.
- Inhabits ecological refugia or specialized or unique habitats.
- Is State-listed but may be better conserved through application of BLM Sensitive species status.

Table 3.6. Fauna Special Status Species Potentially Occurring in Sloan Canyon NCA

Common Name	Scientific Name	Habitat Characteristics	NV BLM Sensitive Wildlife[1]	NNHP[2]	MSHCP-Covered Species[3]	MSHCP High-Priority Evaluation Species[4]
Mammals						
Desert pocket mouse	Chaetodipus penicillatus sobrinus	Sandy or soft alluvial soils along stream bottoms, desert washes, and valleys.				•
Desert kangaroo rat	Dipodomys deserti	Sandy to rocky soils in desert locations with little vegetation.				•
Desert valley kangaroo mouse	Microdipodops megacephalus albiventer	Creosote scrub.	•	•		
Desert bighorn sheep	Ovis canadensis nelsoni	Steep rocky mountainous terrain above desert floor and lower elevation areas with moderate slopes and ruggedness; access to surface water.	•	•		
Townsend's big-eared bat	Corynorhinus townsendii	Shrub-steppe or forest edge in rocky outcrops or caves.	•			•
Pallid bat	Antrozous pallidus	Found in various habitats from desert to brushy terrain to coniferous forest and non-coniferous woodlands; found in all habitats from low desert (creosote bush) to coniferous forest.				
Long-eared myotis	Myotis evotis	Brush, woodland, and forest habitats; prefers coniferous woodlands and forests.			•	
Silver-haired bat	Lasionycteris noctivagans	Hot, semi-arid, shrubby habitats, especially mesquite and brushy pinyon-juniper woodlands; also chaparral, desert scrub. Thorn scrub, oak-juniper woodland, pinyon-juniper, juniper-cholla, mesquite, dry chaparral.			•	
Kit fox	Vulpes macrotus	Dry meadows and grasslands, scrub, foothills, and other arid areas.				•
Birds						
Northern goshawk	Accipiter gentiles	Creosote scrub.	•	•		
Golden eagle	Aquila chrysaetos	Shrubby vegetation near clearings and open areas for foraging; otherwise, a mosaic of altered and unaltered habitat on a landscape scale.	•	•		

[1] ***NV BLM Sensitive Wildlife***—*Nevada Bureau of Land Management wildlife species that may occur within NCA.*

[2] ***NNHP***—*Nevada Natural Heritage Program species that may occur within NCA.*

[3] ***MSHCP-Covered Species***—*(Clark County) Multiple Species Habitat Conservation Plan -covered species within ecosystems of the Sloan Canyon NCA.*

[4] ***MSHCP High-Priority Evaluation Species***—*(Clark County) Multiple Species Habitat Conservation Plan high-priority evaluation species within ecosystems of the Sloan Canyon NCA.*

Table 3.6. Fauna Special Status Species Potentially Occurring in Sloan Canyon NCA

Common Name	Scientific Name	Habitat Characteristics	NV BLM Sensitive Wildlife[1]	NNHP[2]	MSHCP-Covered Species[3]	MSHCP High-Priority Evaluation Species[4]
Prairie falcon	Falco mexicanus	Perennial grasslands, savannahs, rangeland, some agricultural fields, and desert scrub areas.	•	•		
Ferruginous hawk	Buteo regalis	Sagebrush scrub, pinyon-juniper, montane scrub, yellow pine-white fir, lodgepole pine-red fir, cliff faces, salt-tolerant desert scrub, rangeland.	•	•		
Swainson's hawk	Buteo swainsoni	Grassland, shrubland, agricultural areas where it has open areas to forage and where roost sites are available.	•	•		
Loggerhead shrike	Lanius ludovicianus	Open grassland or agricultural areas with some shrubs or small trees for perching, hunting, nesting. Prefers habitats with relatively short grasses and forbs.	•	•		
Phainopepla	Phainopepla nitens	Desert, scrubland, riparian, and woodland habitat, areas supporting desert trees bearing mistletoe, These trees typically are mesquite, catclaw acacia, and juniper.		•	•	
Vesper sparrow	Pooecetes gramineus	Breeds in sagebrush and other shrub habitats with sparse vegetation. Occupies grasslands and croplands in winter, often using scattered shrubs and patches of tall herbs for cover.		•		
Gray vireo	Vireo vicinior	Arid, shrub-covered slopes in pinyon-juniper, juniper, and chamise-redshank chaparral habitats on foothills and mesas.		•		
American peregrine falcon	Falco peregrinus anatum	All wetlands, marsh, riparian, sagebrush scrub, springs.			•	
Western burrowing owl	Athene cunicularia hypugea	Open, well-drained grasslands, steppes, deserts, prairies, and agricultural lands.				•
Reptiles						
Gila monster	Heloderma suspectum	Mountain foothills dominated by saguaros and palo verde trees, also washes that extend down into valleys.	•	•		
Banded Gila monster	Heloderma suspectum cinctum	Mountain foothills dominated by saguaros and palo verde trees, also washes that extend down into valleys.				•
Short-horned lizard	Phrynosoma douglassii	Variety of dry habitats, including sagebrush, grassland, and open woodlands, and variety of soil types, including rocky soils, but prefer areas with some loose or sandy soil.	•			
Western Chuckwalla	Sauromalus obesus obesus	Rocky, creosote bush, desert.			•	
Desert tortoise	Gopherus agassizii	Typically relatively flat valley bottoms. Other suitable habitat includes salt-tolerant desert scrub, Joshua tree woodland, creosote scrub, sagebrush scrub, pinyon-juniper, montane scrub, and rangeland.		•	•	
Banded gecko	Coleonyx variegatus	Rocky or sandy desert and semiarid locales in oak and pinyon-juniper woodlands.			•	
Great Basin collared lizard	Crotaphytus insularis bicinctores	Occurs mainly in xeric, sparsely vegetated rocky areas; sometimes in adjacent areas lacking much rock; perches atop rocks.			•	
Large-spotted leopard lizard	Gambelia wislizenii wislizenii	Desert and semidesert areas with scattered shrubs or other low plants, especially areas with abundant rodent burrows.			•	

Table 3.6. Fauna Special Status Species Potentially Occurring in Sloan Canyon NCA

Common Name	Scientific Name	Habitat Characteristics	NV BLM Sensitive Wildlife[1]	NNHP[2]	MSHCP-Covered Species[3]	MSHCP High-Priority Evaluation Species[4]
Speckled rattlesnake	Crotalus mitchelli	Inhabits rocky hillsides and outcrops and is found near alluvial deposits in the desert.			•	
Mojave green rattlesnake	Crotalus scutulatus scutulatus	Occurs in sparsely vegetated arid lowlands, grass-covered flatlands, and less often along the lower mountain slopes below 4,000 ft. Prefers high, barren desert dotted with creosote bush, mesquite, and cactus.			•	
Desert iguana	Dipsosaurus dorsalis	Creosote bush desert with hummocks of loose sand and patches of firm ground with scattered rocks.			•	
Western leaf-nosed snake	Phyllorhynchus decurtatus	Rocky, gravelly, or sandy creosote bush desert.			•	
Sonoran lyre snake	Trimorphodon biscutatus lambda	Chiefly in rocky areas of lowlands, mesas, and lower mountain slopes; desert grassland, desert scrub, chaparral, pinyon-juniper and oak woodland, open coniferous forest, thornscrub, and "thornforest."			•	
Glossy snake	Arizona elegans	Barren to sparse shrubby desert, sagebrush flats, grassland, sandhills, chaparral slopes, and oak-hickory woodland; generally in open areas with sandy or loamy soil, though rocks may be present.			•	
California (common) kingsnake	Lampropeltis getulus californiae	Wide distribution, occurs in nearly all habitats (exclusive of high mountains), is most abundant in valley-foothill riparian situations and in other habitats occurring in the vicinity of irrigated agriculture.			•	
Western long-nosed snake	Rhinocheilus lecontei lecontei	Deserts, prairies, arid river valleys, shrubland.			•	
Sidewinder	Crotalus cerastes	Open desert terrain in fine windblown sand, desert flats with sandy washes or sand dunes sparsely vegetated with creosote bush or mesquite; sometimes in rocky or gravelly sites.			•	
Southern desert horned lizard	Phyrnosoma platyrhinos calidiarum	Areas of sandy, gravelly soil, windblown sand; flat arid stretches where rocks or scrub vegetation are present.				•

Sources: BLM 2003e, NDOW 2004a, CDFG 2004, NPS 2004.

3.13.3.3 Nevada Natural Heritage Program

The NNHP is designed to coordinate the resource needs of Nevada's diverse biological heritage with human activities. This effort is accomplished by maintaining a detailed inventory and up-to-date databases on the locations, biology, and conservation status of all Threatened, Endangered, and Sensitive Species and biological associations in Nevada. These data are used to assist with the evaluation of conservation priorities and to supply information to meet conservation, planning, development, land management, and research needs (NNHP 2004a).

The NNHP provides the citizens of Nevada with a cost-effective "early warning system" designed to minimize future resource conflicts and to help prevent species from becoming threatened or endangered by encouraging less-costly, less-burdensome, and more-proactive conservation measures now. As of August 5, 2002, the State of Nevada has approximately 181 Clark County plants and animals on the Sensitive Animals and Plant and Lichen Lists and on the Nevada Plant and Animal Watch List (NNHP 2004a).

3.13.3.4 Clark County Multiple Species Habitat Conservation Plan

Clark County, in conjunction with federal and State agencies, as well as local communities, prepared the *Clark County MSHCP* (CCDCP 2000) for Clark County, Nevada, for the purpose of supporting the issuance of a permit(s) under Section 10(a) of the ESA to "(1) allow the 'take' of threatened or endangered species resulting from otherwise lawful activities on non-federal properties within the county and (2) allow the 'take' of threatened or endangered species that are currently unlisted but may become listed in the future" (CCDCP 2000). The intent and purpose of the MSHCP was to "establish a means to address the conservation needs of the entire range of biological resources within Clark County" in a cooperative implementation effort among the USFWS, BLM, United States Forest Service (USFS), National Park Service (NPS), NDOW, and other federal and State land managers and regulators (CCDCP 2000). The MSHCP does not provide for incidental take on federal lands or resulting from federal action on non-Federal lands but does provide a framework for avoidance and minimization of impacts to species from these actions.

The MSHCP approaches conservation needs of plant and wildlife species and their habitats on an ecosystem basis to provide a landscape-scale perspective. The *Clark County MSHCP* (CCDCP 2000) defines covered species as—

- Those species for which sufficient information is available and adequate management prescriptions exist or can easily be defined and implemented to support an application for a Section 10(a) incidental take permit(s)
- Those species for which information is, if available, not sufficient, but are known to share habitat with other covered species
- Those species whose listing appears imminent unless conservation measures are instituted that which would likely ensure survival and recovery of such species in the wild.

High-priority-evaluation species are those "for which additional information is required or for which sufficient management prescriptions are unlikely to be able to be defined and implemented sufficiently to support an application for a 10 (a) Permit" (CCDCP 2000). A total of 20 covered and 7 high-priority-evaluation wildlife species (excluding invertebrates) are within these three ecosystems.

3.13.4 Sloan Canyon Potential Habitat Models

As part of this planning process, BLM developed potential habitat models for six Special Status Species either known to occur or with the potential to occur within the NCA. The species, chosen mostly because of their special status designation by BLM and NDOW, include the desert tortoise, Gila monster, chuckwalla, desert bighorn sheep, phainopepla, and prairie falcon. Physical habitat characteristics (i.e., slope, vegetation) of each species were compared against existing GIS data to determine areas of potential habitat for each species. The models vary in generality and precision, due in part to the amount of available quantitative habitat information and the frequent qualitative nature of existing information (United States Geological Society [USGS] 2005).

3.13.4.1 Desert Tortoise

Declines in desert tortoise populations became a major concern in the 1970's because of direct take by humans; habitat loss, degradation, and fragmentation; predation; diseases; and droughts (USFWS 1994). The Mojave population of desert tortoise was listed as threatened in 1990 in the northern and western parts of its range, and six distinctive population segments were identified for critical habitat protection in 1994 following the guidelines set by the recovery plan released the same year. The population segments are representative of distinctive climatic, floristic, and geographic regions (USGS 1997).

The desert tortoise ranges from the Mojave and Sonoran deserts of southeastern California and southern Nevada south through Arizona into Mexico. Desert tortoises in Nevada typically live in flats, alluvial fans, bajadas, and rocky terrain. They construct extensive burrows up to 9 feet (3 m) in length that are often shared with other tortoises; therefore, areas containing friable soil are indicators of desert tortoise habitat. Plant species also play a major role in tortoise habitat. Creosote bush, burrobush, Mojave yucca, and blackbrush generally distinguish tortoise habitat at lower elevations, with Joshua tree and galleta grass at higher elevations (USGS 1997). Potential desert tortoise habitat within the NCA is presented in Figure 3.13.

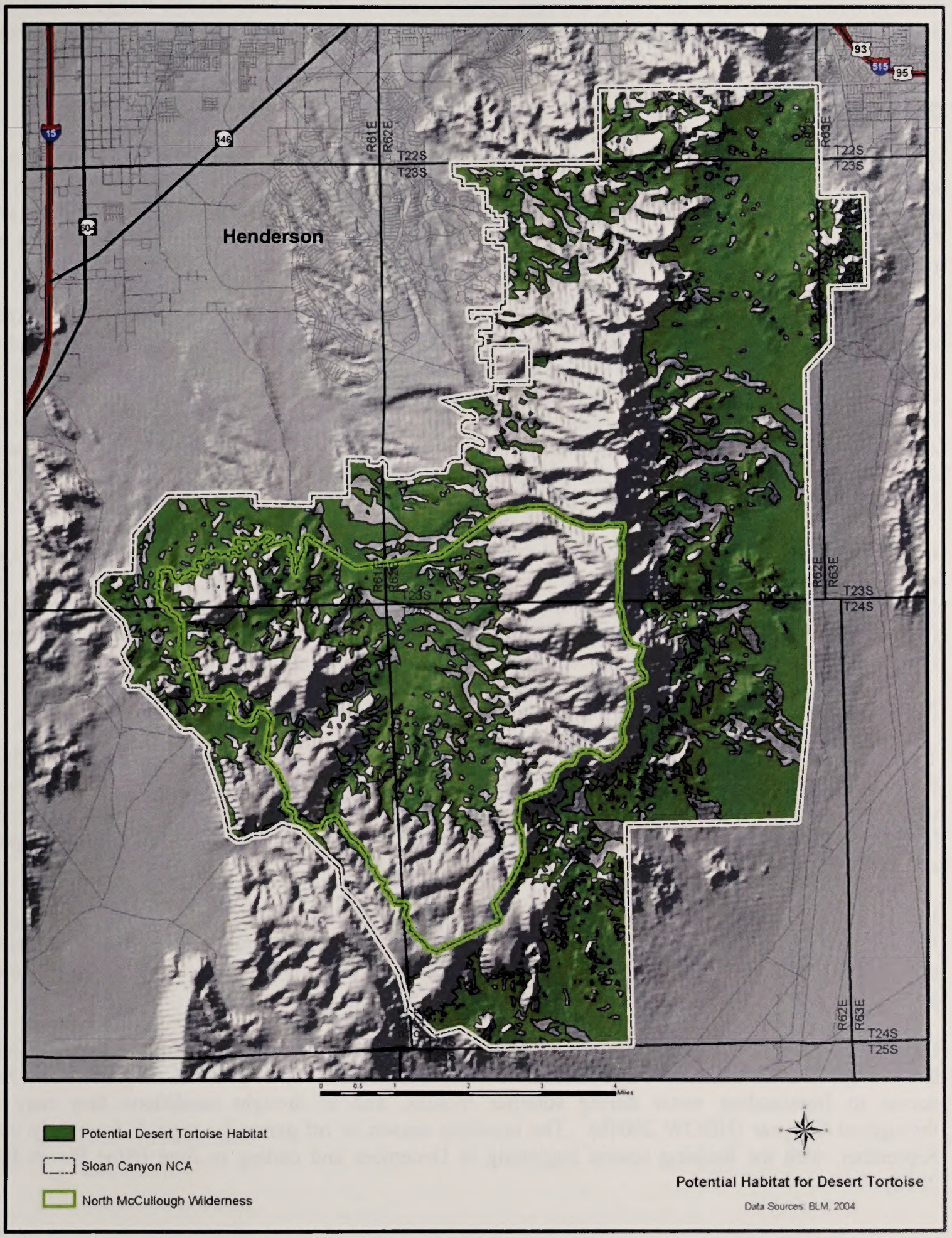
3.13.4.2 Gila Monster

In the State of Nevada, the Gila monster is a BLM-sensitive and State-protected species. Reasons for the protected status include habitat loss attributed to urbanization and some agricultural uses, illegal collection, restricted range in Nevada, and limited knowledge and information. Currently, collection (commercial or personal) of Gila monsters is prohibited in Nevada.

The Gila monster is primarily a desert species and is one of only two species of venomous lizards in the world. It occurs in extreme southwestern Utah, the southern tip of Nevada, southwestern New Mexico, Arizona, and Sonoran Desert. The northern subspecies is the banded Gila monster, and the southern subspecies is the reticulated Gila monster. Although range maps and published accounts indicate the presence of Gila monsters in the Mojave Desert, little is known about the species in the Mojave Desert of Nevada (Gienger 2003).

A model of habitat suitability conducted by C.M. Gienger (2003) indicates that in southern Nevada a wide range of elevation and surface geological features describe habitat used by Gila monsters. Gienger found Gila monsters in Nevada occurring at a range of 1,312 to 3,937 feet (400 to 1,200 meters). Refuge (shelter) site selection differs seasonally and seems to be influenced primarily by seasonal differences in thermal environments. Gila monsters choose deeper shelter sites, as temperatures get hotter in the spring and summer, and shallow sites during early spring and fall when temperatures are cooler. Gila monsters in Nevada spend roughly one-third of the year in hibernation with greatest surface activity in late spring

Figure 3.13. Potential Habitat for Desert Tortoise



(May-June). Home range sizes for Gila monsters in Nevada are larger than those in Utah and Arizona. They travel almost twice as far per bout of activity. This may be because of decreased production in Nevada relative to the other States, which causes the need to forage over greater areas to acquire the same food sources. Relative to the NCA, Gienger (2003) found the North McCullough Range as medium-to-high suitability for Gila monster habitat. Potential Gila monster habitat within the NCA is presented in Figure 3.14.

3.13.4.3 Chuckwalla

The chuckwalla is a BLM-sensitive species whose population may be at risk because of the high amount of collection for the commercial pet trade. Currently, only Nevada allows commercial collection of the chuckwalla for pet trade with most collection beginning in March and continuing until the end of September. Most of the animals collected for commercial pet trade are potentially breeding adults (Brodie et al. 2003).

Chuckwallas occur in southeastern California, southern Nevada, southwestern Utah, western Arizona, eastern Baja California, and northwestern Mexico. They are found in various desert woodland and scrub habitats but are frequently associated with creosote communities. Strictly a rock dweller, the chuckwalla is found in areas with large rocks, boulder piles, or large rock outcrops on slopes of the Great Basin, Mojave, and Sonoran Deserts (California Department of Fish and Game [CDFG] 2004). The relative abundance of chuckwallas appears to be a function of the quality of the rocks that contain suitable crevices for retreat and rock piles that provide basking sites (Brodie et al. 2003). Potential chuckwalla habitat within the NCA is presented in Figure 3.15.

Chuckwallas are active primarily in March through August with greatest activity in the spring. The active season is over by mid-August, and hibernation occurs the remainder of the year. Chuckwallas exhibit little or no detectable migration and tend to be long-lived lizards with high adult survivorship, low juvenile survivorship, and infrequent breeding. These traits make the species susceptible to slow recovery rates should a population crash occur (Brodie et al. 2003).

3.13.4.4 Desert Bighorn Sheep

The desert bighorn sheep, a subspecies of the Rocky Mountain bighorn sheep, is a BLM-sensitive and State-protected species. Reasons for this status include exploitive hunting, disease, habitat destruction, competition from burros, and overgrazing by livestock. Over the past 12 years, desert bighorn numbers have stabilized or increased slightly as a result of reintroduction to former habitat, water developments, and favorable land use decisions (BLM 1998c).

Desert bighorn sheep are indigenous to the hot desert ecosystems of the Southwest. They range from Nevada and California to west Texas and south into Mexico. Desert bighorn historically occupied the central and southern portions of Nevada, and the State currently supports one of the largest modern populations in the United States (BLM 1998c).

Desert bighorn prefer terrain that is rough, rocky and steep, broken up by canyons and washes, and they live in regions of the State marked by hot summers and little annual precipitation. Bighorn sheep require access to freestanding water during summer months, and in drought conditions they may water throughout the year (NDOW 2004b). The breeding season or rut generally extends from July through September, with the lambing season beginning in December and ending in June (Blue Planet Biomes 2002).

Figure 3.14. Potential Habitat for Gila Monster

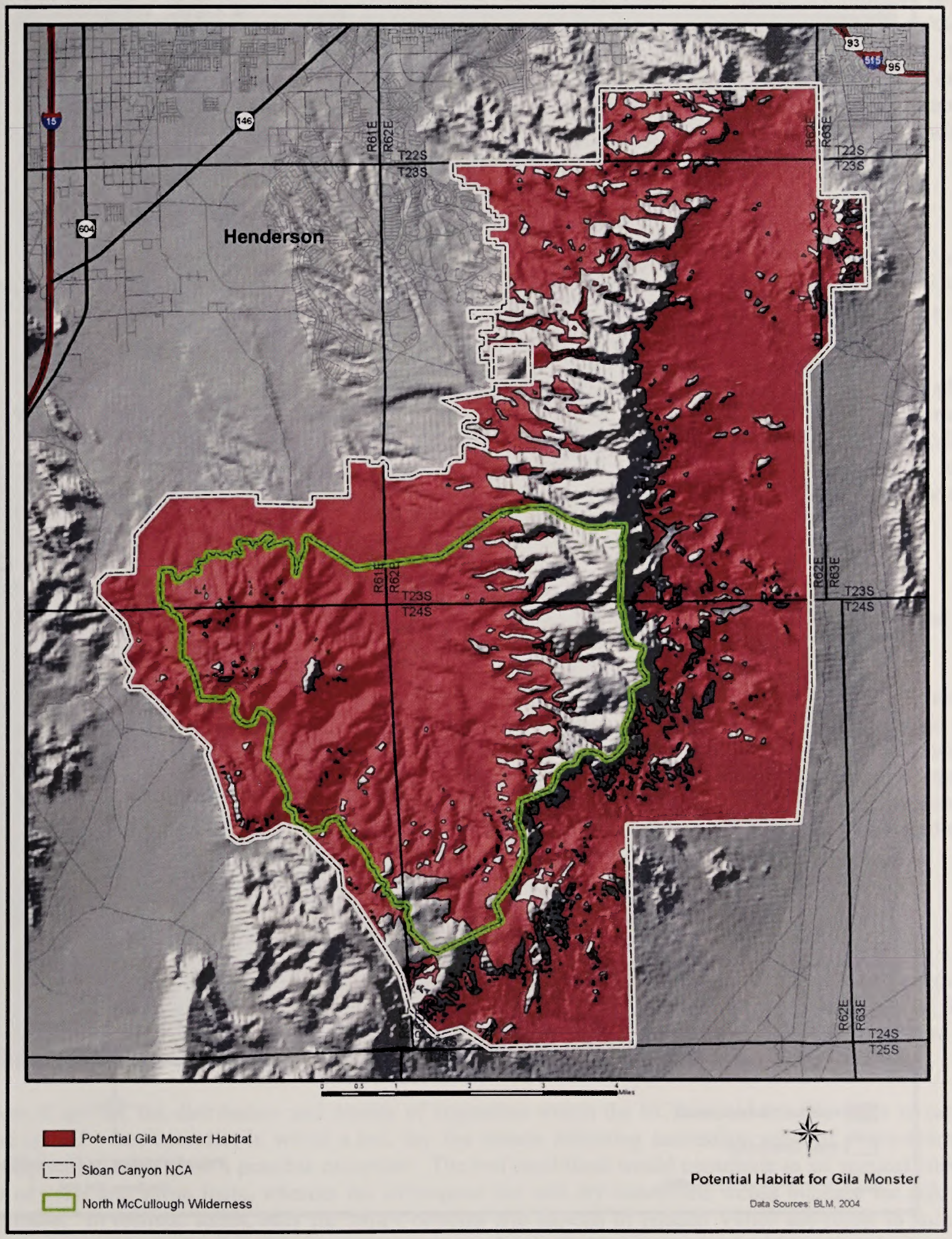
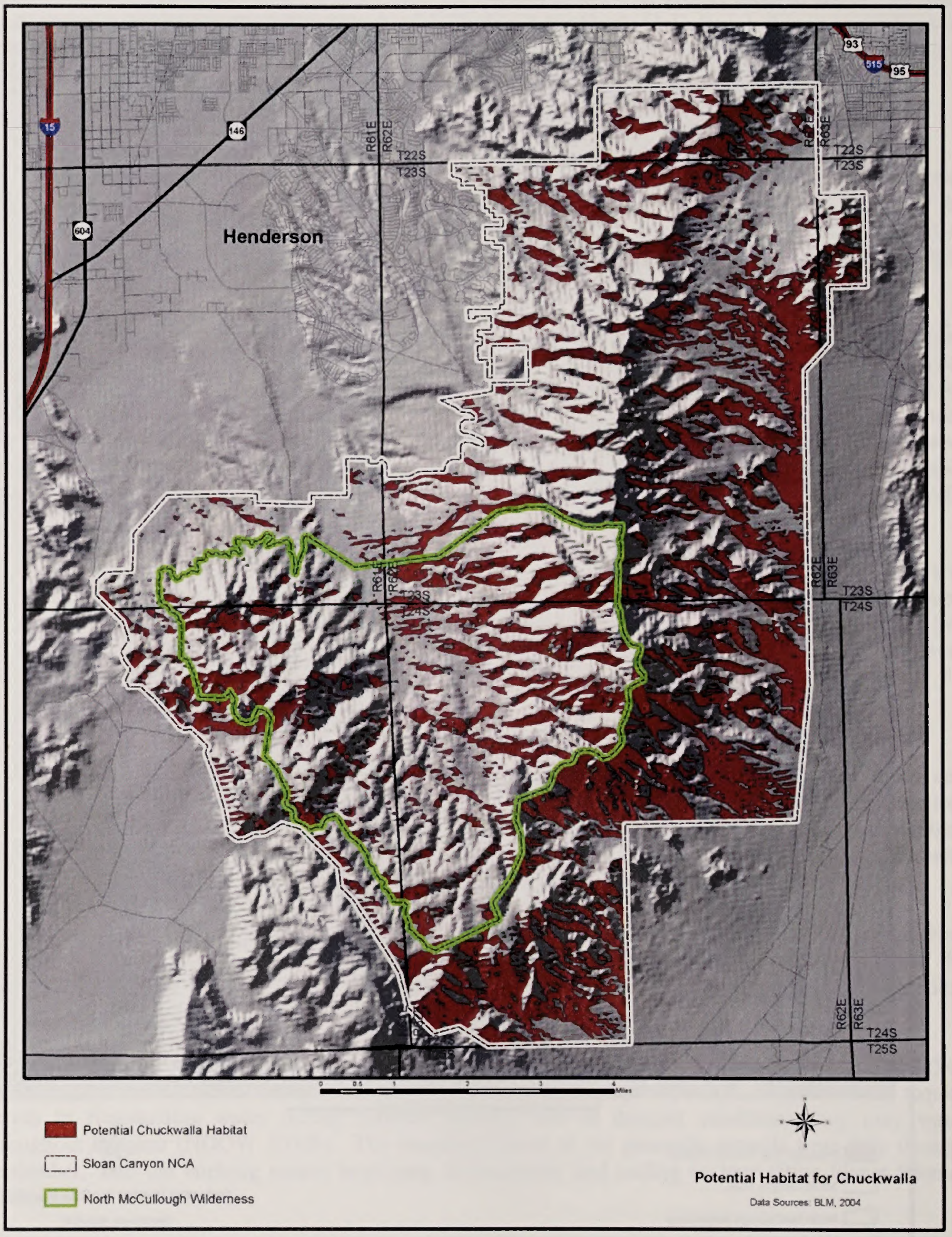


Figure 3.15. Potential Habitat for Chuckwalla



The *Rangewide Plan for Managing Habitat of Desert Bighorn Sheep on Public Lands* (BLM 1998c) provides guidance and sets forth priorities for a program to manage desert bighorn sheep habitat on BLM lands in Arizona, California, Colorado, Nevada, New Mexico, and Utah. The goal of the program is to facilitate recovery of desert bighorn in the Southwest through a balanced program of inventory, on-the-ground projects, monitoring, and research. The objectives of the Rangewide Plan are to facilitate the recovery of desert bighorn sheep in 115 identified habitat areas. The McCullough Mountain Range is one of the 115 habitat areas on BLM land with remnant herds that are capable of supporting viable populations. Bighorn sheep summer habitat and winter range model was developed in conjunction with the U.S. Geological Survey and is presented in Figure 3.16.

3.13.4.5 Phainopepla

The phainopepla is a BLM sensitive, State-protected, and *Clark County MSHCP* (CCDCP 2000) covered species. The main threat to the phainopepla is habitat loss due to urban and some agricultural land development, fires, OHV damage, illegal cutting of mesquite for fuel wood, and construction of gravel pits. Population trends of the phainopepla are being researched in Nevada (NDOW 2004b).

Phainopepla occur in the southwest United States (southern and central California, southern Nevada, Arizona, southern Utah, southern New Mexico, and western and southern Texas) south to Baja California and into Mexico. It is found in desert, shrubland, riparian, and woodland habitats and is generally associated with areas supporting desert trees bearing mistletoe. In Nevada, these trees typically are mesquite, catclaw acacia, and juniper (NDOW 2004b). The potential phainopepla habitat was modeled based on potential acacia habitat and is presented in Figure 3.17.

3.13.4.6 Prairie Falcon

The prairie falcon is a BLM-sensitive and State-protected species. The main threat to the prairie falcon is human disturbance of nesting sites.

The prairie falcon is an uncommon permanent resident and migrant that ranges from southeastern deserts northwest along the inner Coast Ranges and Sierra Nevada. It is distributed from annual grasslands to alpine meadows but associated primarily with perennial grasslands, savannahs, rangeland, some agricultural fields, and desert scrub areas. Prairie falcons use open terrain for foraging and nest in open terrain with canyons, cliffs, escarpments, and rock outcrops that overlook open areas for hunting. Because specific falcon data are not available, potential nesting and fledging habit was modeled based on general raptor habitat characteristics (Figure 3.18).

3.14 WILDLAND FIRE MANAGEMENT

Wildfire is of minimal concern in the Sloan Canyon NCA, as the historical fire record for the area shows almost no fire occurrence. Natural lightning ignitions could occur but are not common because of the sparseness and short stature of the vegetation, particularly on the rocky slopes and the ridgetops. There is potential for human-caused ignitions, but it pertains primarily to the more accessible valley bottoms.

Even if ignited, the distribution and density of vegetation within the NCA would not allow fire to carry and spread. One scenario, in which a hot, dry fire season following successive years of above-normal precipitation, could pose a possible exception. The wet conditions would contribute to an atypical build-up of grass and shrub fuels, whereas the subsequent hot and dry conditions would increase the risk of ignitions. In realistic terms, only the valley bottoms and bajadas of Hidden Valley are prone to such a vegetative build-up. Swales of native galleta grass co-dominate these areas along with creosote bush and

Figure 3.16. Bighorn Sheep Habitat

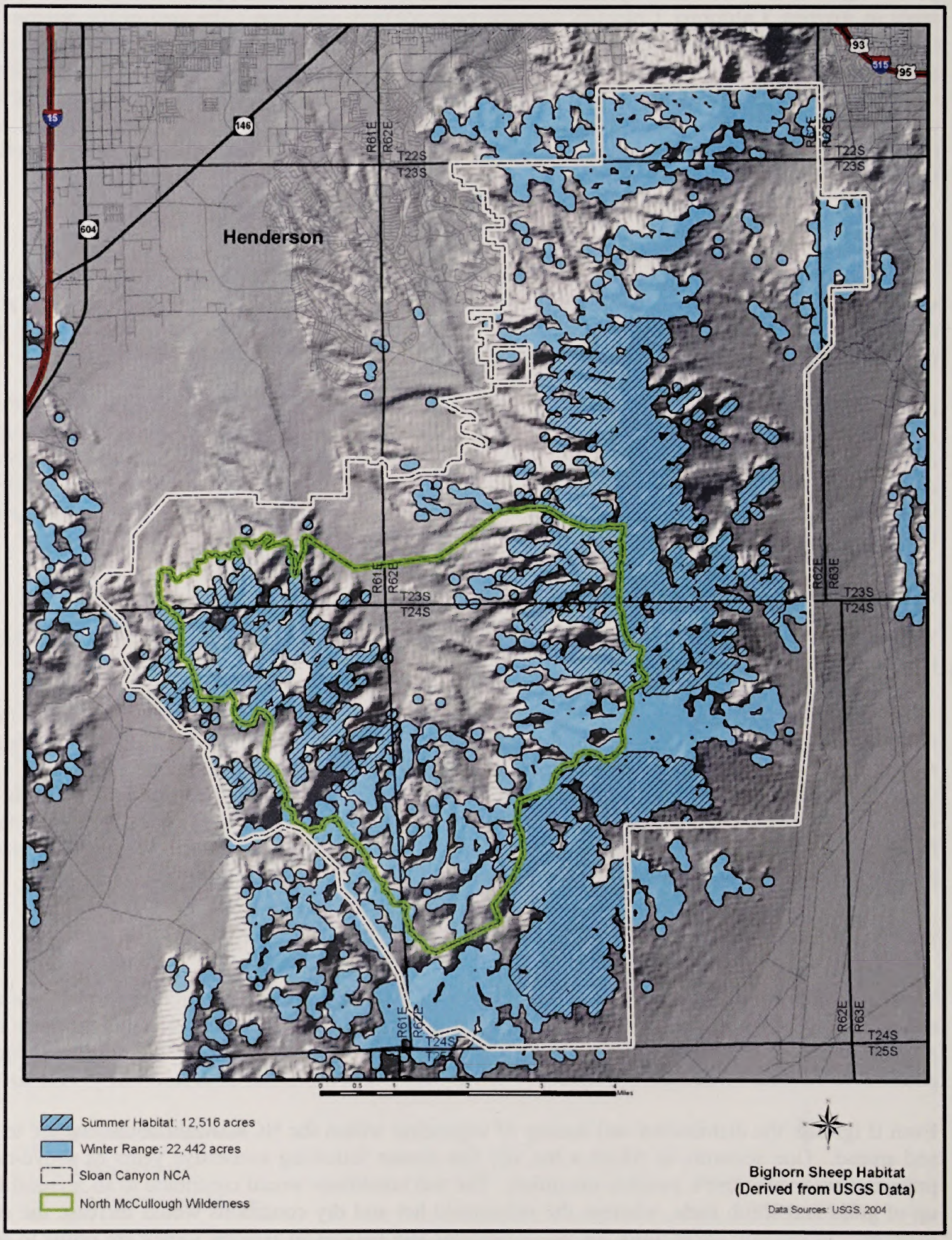


Figure 3.17. Potential Habitat for Phainopepla

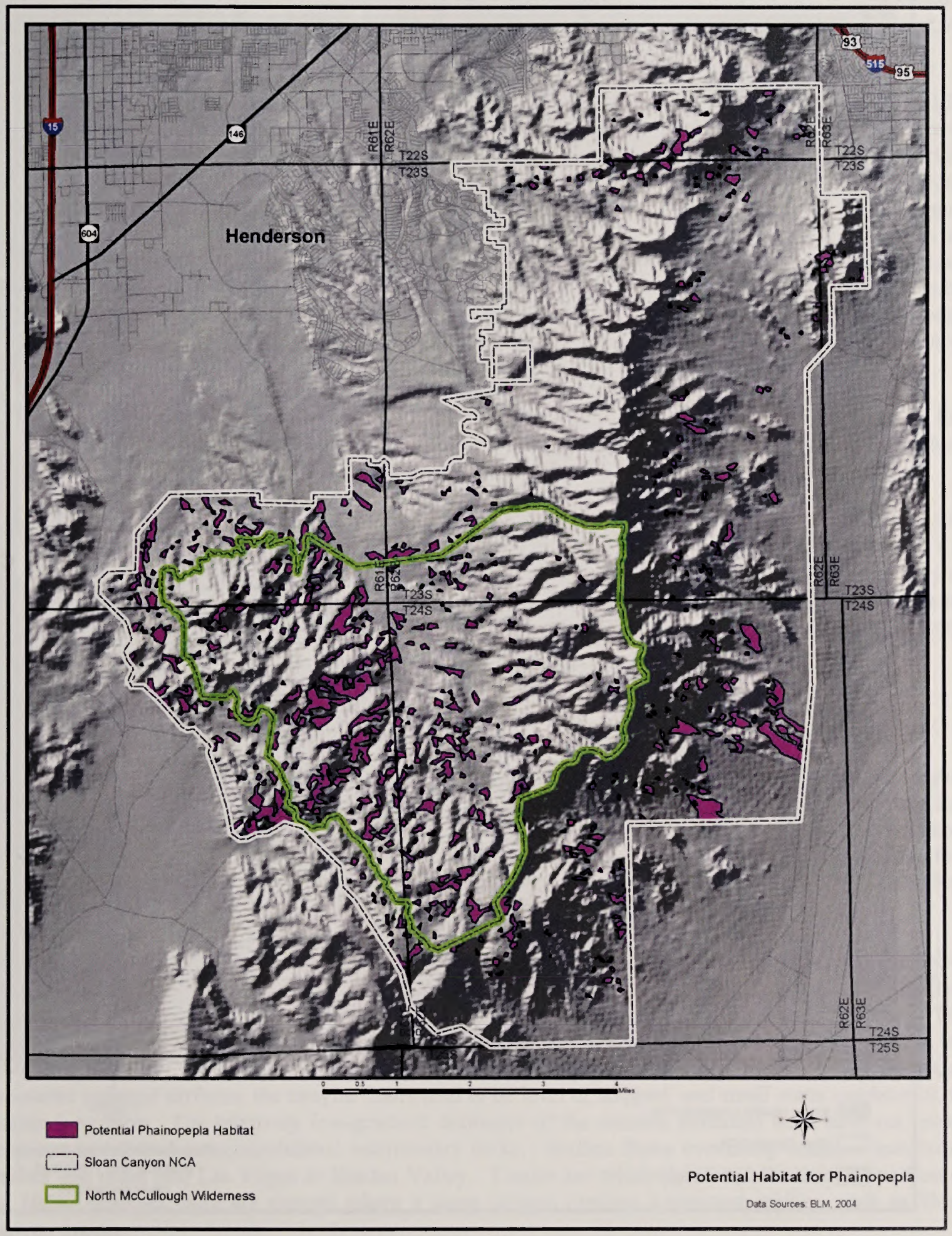
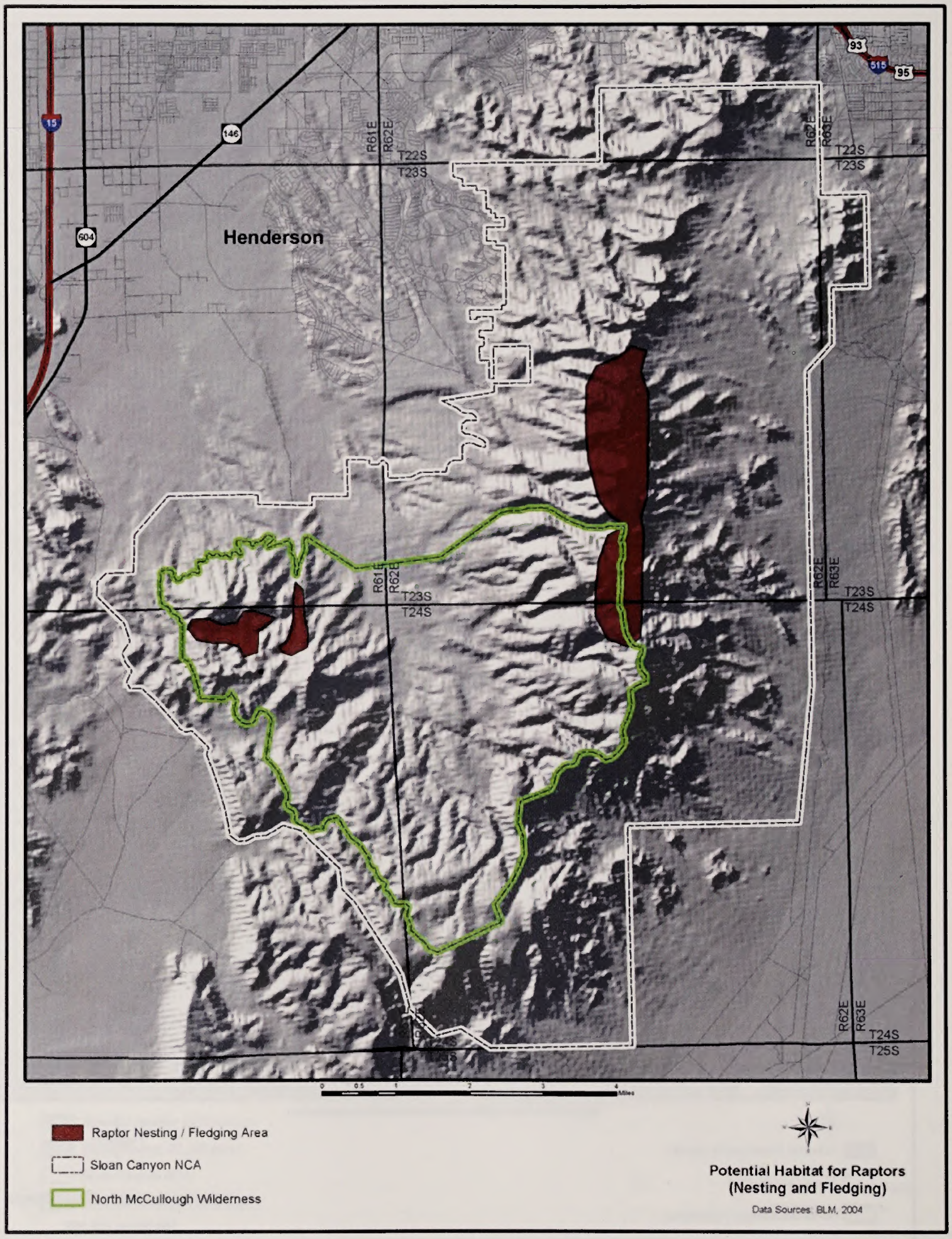


Figure 3.18. Potential Habitat for Raptors (Nesting and Fledging)



white bursage. Under optimal conditions, a wildfire of several hundred acres could potentially occur; however, the fire would be unlikely to pose a threat either to the NCA environment or to human life and property values. The steep, bare rocky slopes on the NCA boundary would prevent fire from spreading upslope into the NCA proper, and this remote location does not contain any facilities, infrastructure, or developments.

The BLM Las Vegas Field Office Fire Management Plan (BLM 2004b) and the *Las Vegas RMP* (BLM 1998a) provide current management direction for fire. The main objective in the *Las Vegas RMP* is to provide fire suppression efforts commensurate with resources and adjacent property values at risk. Further direction from the RMP divides the planning area into fire suppression zones. All of the Sloan Canyon NCA falls within Zone 2B. This zone is characterized by critical desert tortoise and bighorn sheep habitat, little rainfall, and a higher percentage of ephemeral/perennial plant communities as compared with other zones. The objective for managing this Fire Management Unit is to allow degraded vegetative communities to ecologically improve over time through the use of moderate suppression tactics. The maximum acceptable burn acre per incident is 1 acre with maximum acceptable burn acreage per year of 50 acres. Constraints in the plan include minimizing off-road travel, road surface disturbance, permitting use of foam and retardant, and the existence of wildland urban interface areas.

Fire fuels management has not been practiced in the Sloan Canyon vicinity because of the lack of fire threat posed by the local vegetative characteristics. There is no anticipation of any future desire or need for fire fuels management actions to be taken in the Sloan Canyon NCA vicinity.

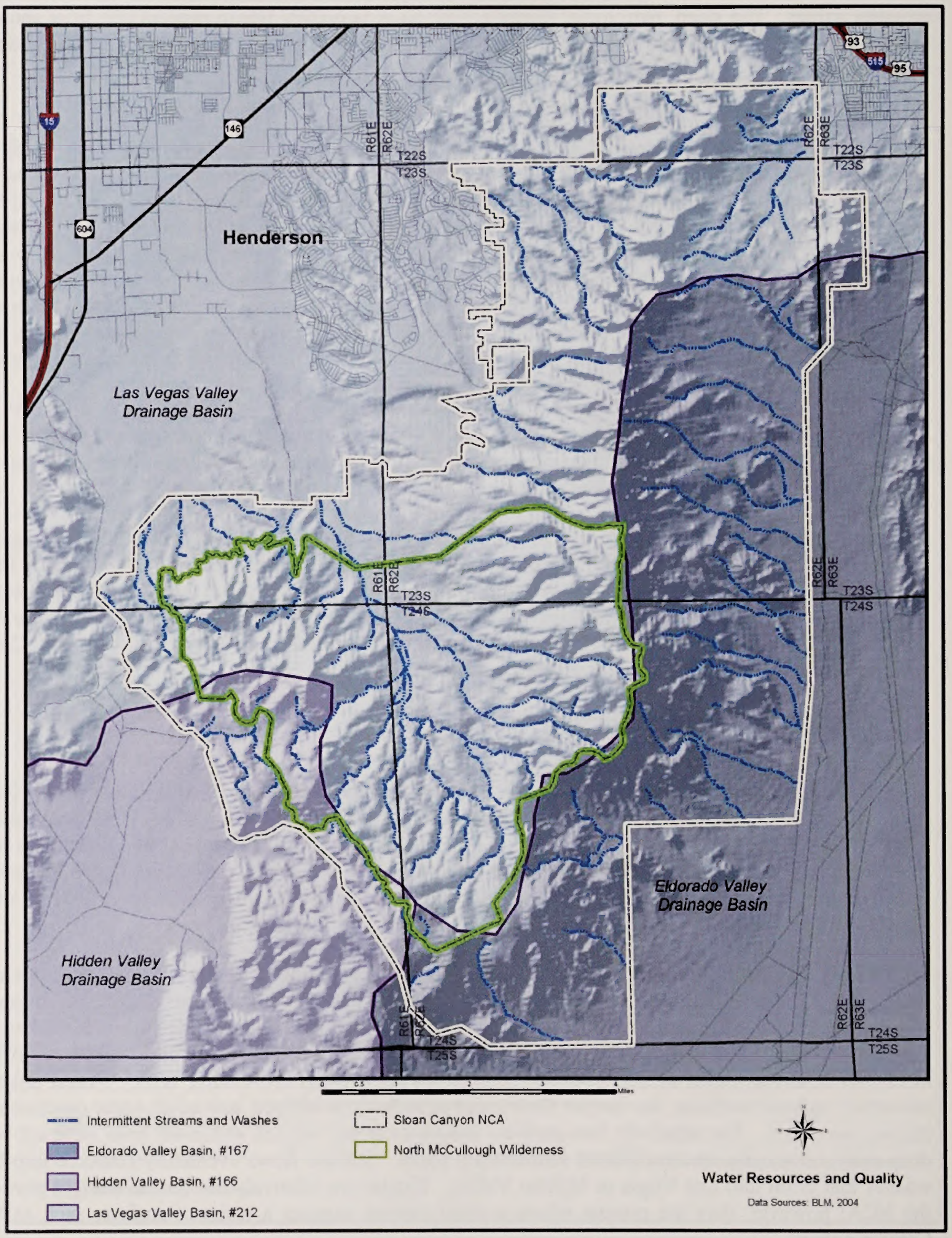
A Memorandum of Understanding (MOU) is either in place or being developed with other agencies regarding initial attack suppression that would apply to fire management in the NCA. Completed MOUs include statewide MOUs with the Nevada Division of Forestry, the USFS, and the NPS (in the vicinity of Lake Mead), and they cover initial attack and suppression as well as dispatch. Other MOUs are being developed with local governments, including the City of Henderson, Las Vegas, and Clark County, regarding initial attack in the vicinity of the Sloan Canyon NCA.

3.15 WATER RESOURCES AND QUALITY

The NCA straddles the hydrographic boundary between the Colorado River Basin and the Central Region Basin. The canyons, fans, and washes of the northwestern and central portion of the NCA drain into Las Vegas Valley, a tributary of the Colorado River system. The steep eastern canyons and fans direct runoff into the closed basin of Eldorado Valley, which is separated from the Colorado River system by one low mountain range. Ephemeral stream flows in the southwestern portion of the NCA enter Hidden Valley, also a closed basin (Figure 3.19).

The drainages of the McCullough Range are typically simple dendritic systems originating on the upper slopes of the range. On the uplifted eastern side of the NCA, the drainages form narrow, steep-gradient canyons that travel short distances before contributing to the broad fans of the Eldorado Valley. The drainages cut through less-resistant rocks, typically volcanoclastic ashflows, breccias, and weak tuffs, but often run relatively level across resistant surfaces of lava flows or welded tuffs. When drainages encounter resistant surfaces, the canyon floors tend to be level or stepped, and small water catchments, or tinajas, may form. The relatively low-gradient drainages of the western mountain front have cut broad, deep canyons into the unconsolidated sedimentary rocks. Surface flows eventually coalesce into broad washes that drain into Las Vegas or Hidden Valley. Tinajas are relatively rare in the western portion of the NCA; however, they are present where a steep canyon exposes a resistant surface, such as Sloan Canyon proper.

Figure 3.19. Water Resources and Quality



The watersheds within the NCA have experienced little development or human modification, although remnants of several very small dams exist. A few of the NCA drainages have been altered by culverts along dirt roadways, and detention basins inside and outside the NCA boundary provide temporary storage capacity for peak flow from storm events and control the release of flows to protect downstream structures from flooding.

No perennial streams exist within the NCA, but high-intensity thunderstorms can produce rapid runoff and flash flooding, which can result in floodwater and sediment damage. Sloan Canyon hosts an ephemeral stream where water is found in the channel only during, and immediately after, rainstorms. Buried step pools, currently filled with sand and gravel, serve as an important water resource for the Sloan Canyon ecosystem. Numerous high water marks indicate the susceptibility of Sloan Canyon to relatively frequent flood events. Organic and inorganic debris is present along the entire length of the channel, and high water marks in the narrows are 6 feet above the channel bottom.

3.15.1 Groundwater Resources

Because of the steep bedrock terrain, essentially no groundwater sources exist in the Sloan Canyon NCA; however, the range does provide a relatively small amount of recharge to alluvial aquifers in adjacent valleys. Precipitation reaches groundwater reservoirs by infiltrating into streambed channels and alluvial aprons or by infiltrating directly into consolidated rock and percolating vertically and laterally to valley aquifer fill. Very small perched or contact springs occur in the eastern portion of the NCA. The source water for these springs is local rainwater infiltration that has been concentrated where downward migration is inhibited. These springs are not connected with surrounding groundwater basins or regional groundwater flow systems.

3.15.2 Water Quality

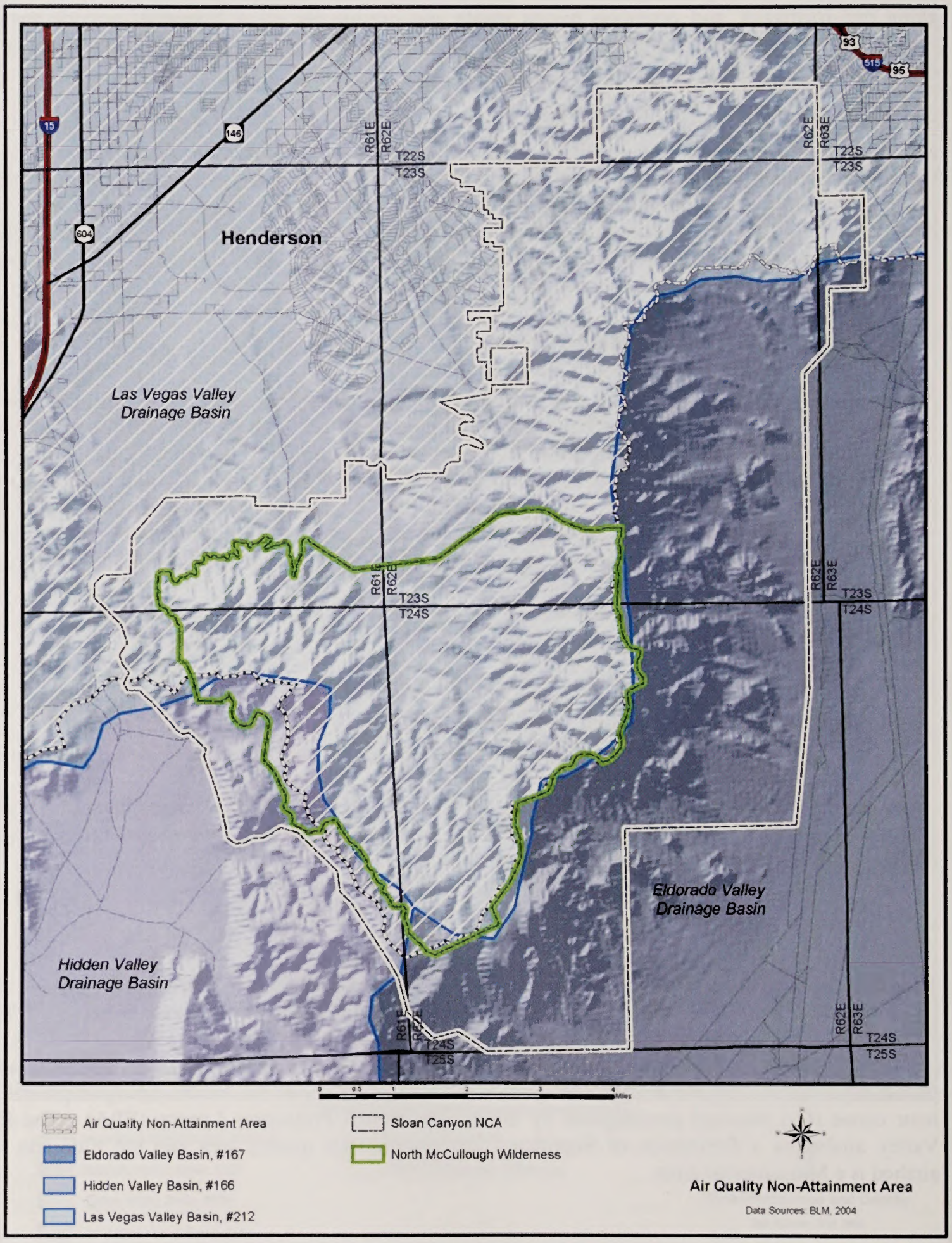
Because of its rugged terrain, limited water, and long-term WSA status, the NCA has experienced little grazing, OHV use, or mineral activities. Therefore, erosion has been low, vegetation cover is good, and essentially no direct contamination has occurred to either surface or groundwater resources (BLM 1998a).

Groundwater within the NCA can be high in total dissolved solids and other naturally occurring compounds resulting from the dissolution of rock-forming minerals. High concentrations of bacteria could occur naturally in small ephemeral springs and seeps.

3.16 Air Quality

The NCA is located in three airsheds: Las Vegas Valley (Hydrographic Basin 212), Hidden Valley (Hydrographic Basin 166), and Eldorado Valley (Hydrographic Basin 167) (Figure 3.20). In 1993, the Las Vegas Valley was designated as serious nonattainment for particulate matter with a mean aerodynamic diameter of 10 µm or less (PM_{10}). In 1997, it was designated as serious nonattainment for carbon monoxide (CO) and in 2004 designated as "basic" nonattainment for the newly implemented 8-hour ozone (O_3) standard promulgated by the Environmental Protection Agency (EPA). The Hidden Valley airshed is a Prevention of Significant Deterioration air quality area and the Eldorado Valley airshed is a Management Area.

Figure 3.20. Air Quality Non-Attainment Area



3.16.1 Ambient Air Quality

The Clark County Department of Air Quality and Environmental Management (DAQEM) operates a state-of-the-art system of near-real-time air quality instruments to constantly measure the ambient concentrations of criteria pollutants of particulate matter less than 10 microns in diameter (PM_{10}); and ($PM_{2.5}$), carbon monoxide (CO), ozone (O_3), nitrogen oxides (NO and NO_2), sulfur dioxide (SO_2), chlorine (CL2), and hydrogen sulfide (H2S) are monitored as special projects. Twenty monitoring locations are spatially distributed throughout Hydrographic Basin 212 as well as outlying site locations based upon emission source distribution and population exposure.

3.16.2 Ambient Air Quality Concentrations

The EPA established the National Ambient Air Quality Standards (NAAQS) for criteria pollutants. These pollutants are those compounds that cause or contribute to air pollution that could endanger public health and the environment. The NAAQS for criteria pollutants are presented in Table 3.7. Ambient air concentration refers to the mass of pollutants present in volume of air and can be reported in units of micrograms per cubic meter ($\mu g/m^3$) or parts per million (ppm).

Table 3.7. National Ambient Air Quality Standards

Pollutant	Standard	Standard Value*	Standard Type
Carbon Monoxide (CO)	8-Hour Average	9 ppm (10 mg/m^3)	Primary
	1-Hour Average	35 ppm (40 mg/m^3)	Primary
Nitrogen Dioxide (NO_2)	Annual Arithmetic Mean	0.053 ppm (100 µg/ m^3)	Primary and Secondary
Ozone (O_3)	1-Hour Average	0.12 ppm (235 µg/ m^3)	Primary and Secondary
	8-Hour Average	0.08 ppm (157 µg/ m^3)	Primary and Secondary
Lead (Pb)	Quarterly Average	1.5 µg/ m^3	Primary and Secondary
Particulate Matter (PM_{10})	Annual Arithmetic Mean	50 µg/ m^3	Primary and Secondary
	24-Hour Average	150 µg/ m^3	Primary and Secondary
Particulate Matter ($PM_{2.5}$)	Annual Arithmetic Mean	15 µg/ m^3	Primary and Secondary
	24-Hour Average	65 µg/ m^3	Primary and Secondary
Sulfur Dioxide (SO_2)	Annual Arithmetic Mean	0.03 ppm (80 µg/ m^3)	Primary
	24-Hour Average	0.14 ppm (365 µg/ m^3)	Primary
	3-Hour Average	0.50 ppm (1300 µg/ m^3)	Secondary

* Parenthetical value is an approximate equivalent concentration. mg/m^3=milligrams per cubic meter of air, and µg/ m^3= micrograms per cubic meter of air.

Source: CCDAQEM 2003b.

3.16.3 Criteria Pollutants Designated as Nonattainment

This section describes the criteria pollutants that contribute to the Las Vegas Valley airshed's nonattainment designation: particulate matter (PM_{10}), carbon monoxide (CO), and ozone (O_3) (BLM 2004f).

3.16.3.1 Carbon Monoxide

Carbon monoxide (CO) is formed by the incomplete combustion of fossil fuels and other carbon-containing materials. Although the Las Vegas Valley airshed is classified serious nonattainment for CO, there have been no violations of the NAAQS since 1999 (CCDAQEM 2003b). Long-term trends show improving air quality in Las Vegas with respect to CO since the 1980s when violations of the standard occurred between 18 and 41 times per year. A State Implementation Plan (SIP) was prepared by the CCDAQEM and approved by the EPA to achieve CO compliance.

3.16.3.2 Particulate Matter

Particulate material in the atmosphere is produced from various sources. Naturally occurring soil material may be mobilized and transported by surface winds, especially when disturbed by surface activities. The largest sources of particulate matter are from construction activities, vacant lands, and paved and unpaved roads. Vehicles, particularly diesel-powered vehicles, are the major sources of combustion particles within the Las Vegas Valley.

The Las Vegas airshed was designated as serious nonattainment for PM_{10}. In the last 5 years (1999–2003) measurements of particulates have been recorded at more than one location, indicating violations of the 24-hour PM_{10} standard as set forth by the NAAQS (CCDAQEM 2003b). A SIP was prepared for PM_{10} by the CCDAQEM and approved by the EPA to achieve compliance. The PM_{10} nonattainment area for Las Vegas is shown in Figure 3.20 and includes a portion of the Sloan Canyon NCA.

3.16.3.3 Ozone

Ozone (O_3) is produced through a series of chemical reactions of nitrogen oxides with volatile organic oxides in sunlight. Ozone is more prevalent from May to October when sunlight, high temperatures, and stagnant air conditions trigger its formation. Available data on O_3 measurements indicate that air quality in the Las Vegas Valley is not in compliance with the revised 8-hour NAAQS for O_3. The EPA designated Clark County as nonattainment for O_3 on April 15, 2004, but granted a request from the State of Nevada to defer the designation date to mid-September 2004 to allow additional analysis of the nonattainment boundary. The plan is to develop and implement a SIP, prepared by the DAQEM, on how the county would achieve the new 8-hour standard by June 2009.

3.16.4 Air Quality Modeling

In early 2004, Argonne National Laboratory prepared a comprehensive air quality modeling study and supporting field measurements to assess current and future cumulative air quality impacts in the Las Vegas metropolitan urban valley. The modeling effort was completed in support of BLM's ongoing Land Disposition Actions within the BLM disposal boundary. The study used a third-generation, state-of-the-art Eulerian dispersion model (Association Multiscale Air Quality Models-3), along with a fifth-generation prognostic mesoscale meterological (MM5) model to simulate the influences of atmospheric physics and chemistry on pollutant transport and diffusion (BLM 2004f).

3.17 GRAZING

The Hidden Valley Allotment is the only allotment open to livestock grazing in the Sloan Canyon NCA. Most of the Hidden Valley Allotment is outside the NCA and therefore is not affected by this plan's decisions; however, a portion of the allotment extends north into the NCA and the North McCullough Wilderness (Figure 3.21).

Grazing on the Hidden Valley Allotment is ephemeral, which means that authorization to graze is dependent on climatic conditions and grass production. The permittee may graze the allotment if the BLM Authorized Officer determines forage conditions are suitable for livestock grazing. The permittee does not forfeit the ability to apply if no permit application is made or allotted forage is not used.

Domestic livestock use is limited to cattle in this allotment. Table 3.8 shows the number of cattle that have been authorized to graze on the Hidden Valley Allotment for the past 13 years.

Figure 3.21. Hidden Valley Allotment

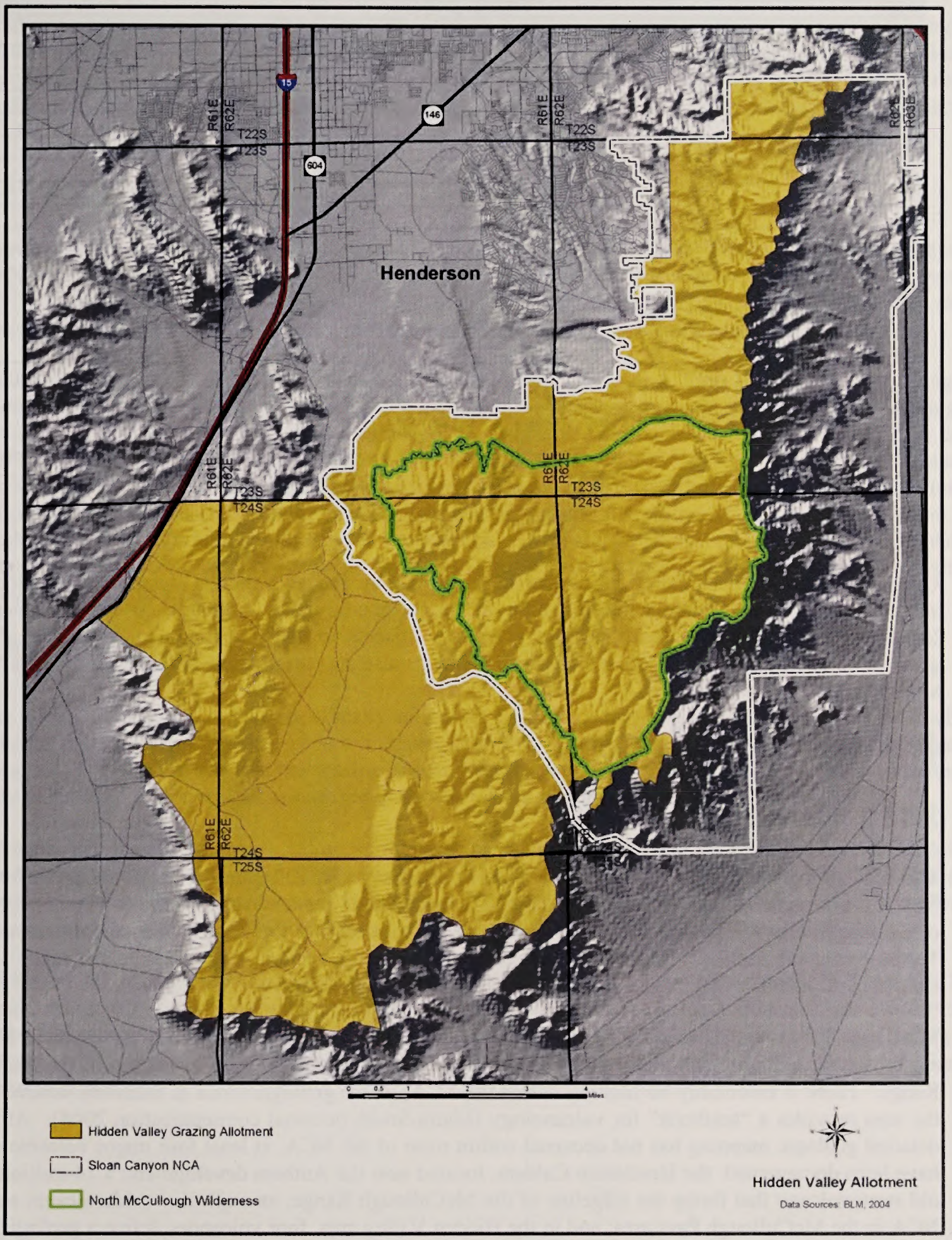


Table 3.8. Livestock Grazing on the Hidden Valley Allotment 1990–2002

Licensed Animal Unit Month	Number of Cattle Authorized to Graze	Season Authorized to Graze
177	55	03/01/1990 to 03/19/1990
	65	03/20/1990 to 05/25/1990
51	50	10/31/1990 to 11/30/1990
157	53	12/01/1990 to 02/28/1991
188	62	03/01/1991 to 05/31/1991
24	45	11/15/1992 to 11/30/1992
254	86	12/01/1992 to 02/28/1993
66	100	11/11/1993 to 11/30/1993
296	100	12/01/1993 to 02/28/1994
89	90	10/26/1994 to 11/30/1994
121	90	12/01/1994 to 01/10/1995
53	90	02/11/1995 to 02/28/1995
An application to graze 90 cattle was denied because it was not consistent with the Terms and Conditions of the Biological Opinion to Protect the Desert Tortoise.		03/01/1995 to 04/30/1995
99	100	11/01/1995 to 11/30/1995
284	96	12/01/1995 to 02/28/1996
An application for nonuse of the allotment based on drought conditions was submitted.		1997
41	40	12/01/1999 to 12/31/1999
No applications to graze livestock in the Hidden Valley grazing allotment were received.		2000–2002

Source: BLM 2004g.

Grazing on the Hidden Valley Allotment is supported by hauled water. Water haul locations are strategically placed to avoid wildlife habitat and target grazing use. Although no current water haul locations are within the NCA, at least one is directly adjacent to the NCA boundary in an area of good grass production. Roads that access water haul locations also support grazing, and several roads serve the allotment to the south of the NCA.

3.18 GEOLOGY AND SOILS

3.18.1 Geology

The McCullough Range lies in the southern Basin and Range Province and trends north–south from the New York Mountains in California to the City of Henderson in the Las Vegas Valley. The northern part of the range, where the Sloan Canyon NCA is located, consists of a Precambrian basement overlain by a Tertiary volcanic section. Excellent exposure of this volcanic section is provided in the range's steep eastern escarpment, which ranges from 2,000 to 3,000 feet high (Bridwell 1991).

The North McCullough Range is unique in that the geology in all other ranges in the southern Nevada region has been highly distorted by extensional faulting associated with the formation of the Basin and Range. There is essentially no faulting within the NCA, so the geologic block is relatively coherent, and the area provides a "textbook" for volcanology (Marrs-Smith personal communication 2004). Although detailed geologic mapping has not occurred within most of the NCA, at least four major volcanic events have been documented: the Henderson Caldera, located near the Anthem development; a 14-million-year-old stratovolcano that forms the ridgeline of the McCullough Range; an explosive caldera event south of NCA in the McCullough Pass area; and in the Hidden Valley area, four volcanoes define a geologic "sag"

(Marrs-Smith personal communication 2004). Volcanic features within the NCA include cinder cones, lava fountaining, and domes of viscous lava.

Despite limited faulting, many of the rock units in the NCA are highly fractured, which strongly influences slope stability, as evidenced by recent rock fall and small-scale landslide events in the Sloan Canyon Petroglyph Site (BLM 2000). Alluvial slopes are near the angle of repose, making maneuvering on them difficult and downslope movement likely, posing risk to both visitors and cultural resources (BLM 2000).

3.18.2 Soils

A combination of published soil surveys of the Las Vegas Valley and unpublished reconnaissance mapping by the National Resource Conservation Service (NRCS) provide a general picture of the types of soils within the NCA (NRCS 1985). The soil types found within the NCA are listed in Table 3.9 and presented in Figure 3.22, NRCS Soil Types in Sloan Canyon NCA.

Soils in the region largely derive from the eroded volcanic rocks that form the McCullough Range. Higher elevations typically consist of rock outcrops, but the clastic nature of the rock units provides high amounts of sand-sized sediment and contributes to the extensive fan system abutting the range. Older fan surfaces, generally higher in elevation and isolated from incised washes, often show intense carbonatecementation underlying a shallow pavement of basalt and rhyolite boulders. Pavements may form on younger fan surfaces in the central basin and on the east side of the NCA, but their formation is inhibited on the older fans due to surface cementation. Downslope, the mid-range alluvial fans contain deeper soils consisting of gravelly sandy loam. At lower elevations and on basin floors, very deep, fine silts, sands, and loams are deposited.

3.19 MINERALS

The Sloan Canyon NCA Act specifically addresses mining claims and states that except for "valid existing rights, all public land . . . is withdrawn from . . . location, entry, and patent under the mining laws; and operation of the mineral leasing, mineral materials and geothermal leasing laws." Therefore, only valid, existing mineral claims are recognized for this planning process.

No economic metallic minerals, uranium, thorium, or economically viable nonmetallic mineral deposits have been found within the NCA (Great Basin GEM 1983). Just inside the eastern boundary of the NCA, the Railroad Pass district produced a limited amount of gold from the Quo Vadis mine. Gold and silver was produced in 1935 and 1936 from quartz veinlets in sheared andesite (Great Basin GEM 1983).

Within the NCA boundary, there are 11 active mining claims. These claims are located in Township 23 South, Range 61 East and are within or overlap the NCA and portions of the Wilderness. A consortium of investors owns these claims, which are shown in Figure 3.23. The BLM is currently conducting a validity determination on two of the active claims, Black Mountain Number 72 and 73, as part of a land disposal action.

Figure 3.22. NRCS Soil Types Sloan Canyon NCA

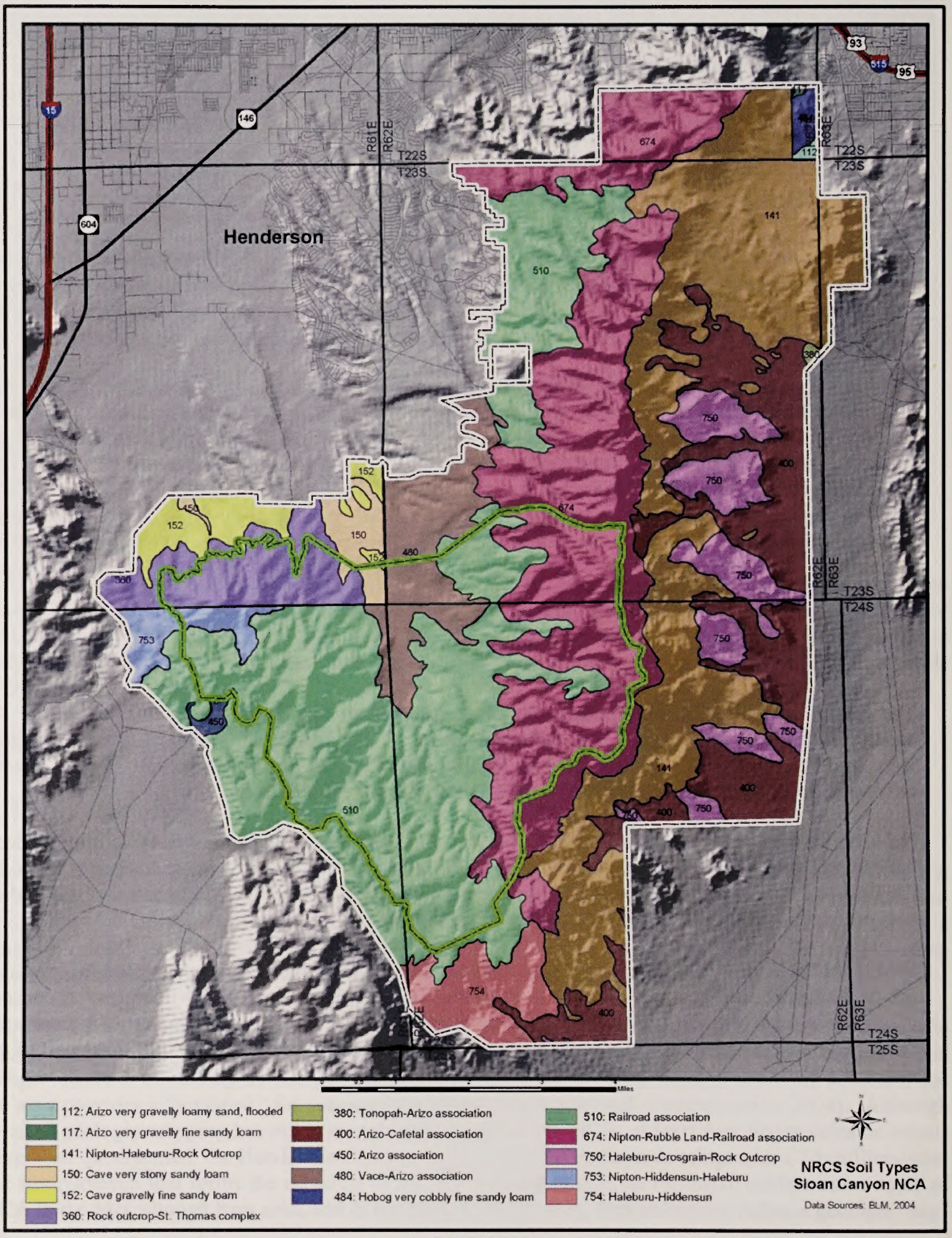


Figure 3.23. Existing Locatable Mineral Mining Claims

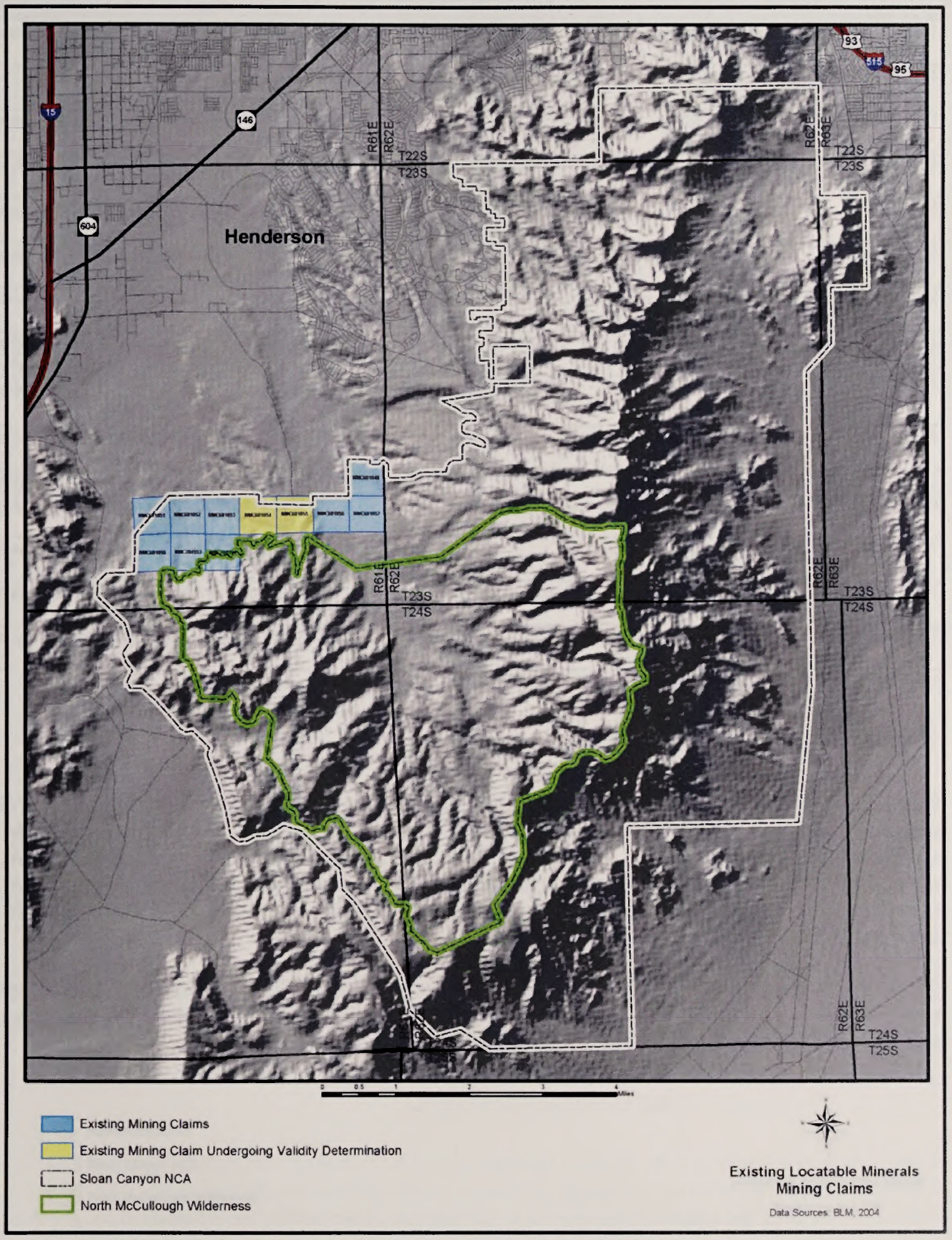


Table 3.9. Soil Types Within Sloan Canyon NCA

Soil Number	Soil/Association Name	Ecological Site Description
112	Arizo very gravelly loamy sand	Deep, excessively drained soils in channels on fan piedmonts; permeability rapid; runoff slow; water erosion hazard slight.
117	Arizo very gravelly fine sandy loam	Very deep, excessively drained soil on alluvial fans and inset fans; permeability very rapid; runoff slow; water erosion hazard slight.
141	Nipton-Haleburu-Rock Outcrop Association	Well-drained soil on backslopes of mountains; permeability moderately rapid; runoff very high.
150	Cave Very Stony Sandy Loam	Shallow, well-drained soil on erosional fan remnants; permeability moderate; runoff slow; water erosion hazard slight.
152	Cave Gravelly Fine Sandy Loam	Shallow, well-drained soil on erosional fan remnants; permeability moderate; runoff slow; water erosion hazard slight.
360	Rock Outcrop - St. Thomas Complex	Shallow, well-drained soil on hills and low mountains; permeability moderately rapid; runoff rapid; water erosion hazard moderate.
380	Tonopah-Arizo Association	Excessively drained soil in intermontane basins; permeability moderately rapid; runoff low.
400	Arizo-Cafetal Association	Excessively drained soil on fan piedmonts; permeability rapid; runoff very low.
450	Arizo Association	Excessively drained soil on fan piedmonts; permeability rapid; runoff very low.
480	Vace-Arizo Association	Well-drained soil on fan piedmonts; permeability moderate; runoff very high.
484	Hobog Very Cobbly Fine Sandy Loam	Shallow, well-drained soil on hills; permeability moderately rapid; runoff rapid; water erosion hazard moderate.
510	Railroad Association	Well-drained soil on lava flows; permeability moderately rapid; runoff high.
674	Nipton-Rubble Land-Railroad Association	Well-drained soil on backslopes of mountains; permeability moderately rapid; runoff very high.
750	Haleburu-Crosgrain Rock Outcrop Association	Well-drained soil on backslopes of mountains; permeability moderately rapid; runoff very high.
753	Nipton-Hiddensun-Haleburu Association	Well-drained soil on backslopes of mountains; permeability moderately rapid; runoff very high.
754	Haleburu-Hiddensun Association	Well-drained soil on summits of mountains; permeability moderately rapid; runoff very high.

Sources: Edmunds personal communication 2003; NRCS 1985.

3.20 ABANDONED MINES

Miners have left a legacy of constructed mining hazards in southern Nevada, which are not always apparent to visitors enjoying outdoor recreation. Common hazards include open shafts, unstable rock, and decayed support structures. The Nevada Division of Minerals, Abandoned Mine Program, was created by legislation in 1987 in response to numerous safety incidents that occurred in abandoned mine openings. The program provides for public safety by identifying and securing dangerous orphaned mine openings (State of Nevada 2001).

To date, 18 abandoned mine sites have been identified within the NCA (Figure 3.24 [Durbin personal communication 2003]). Most of these have been secured through backfilling, although several have been fenced or signed as presented in Table 3.10.

Figure 3.24. Identified Abandoned Mines

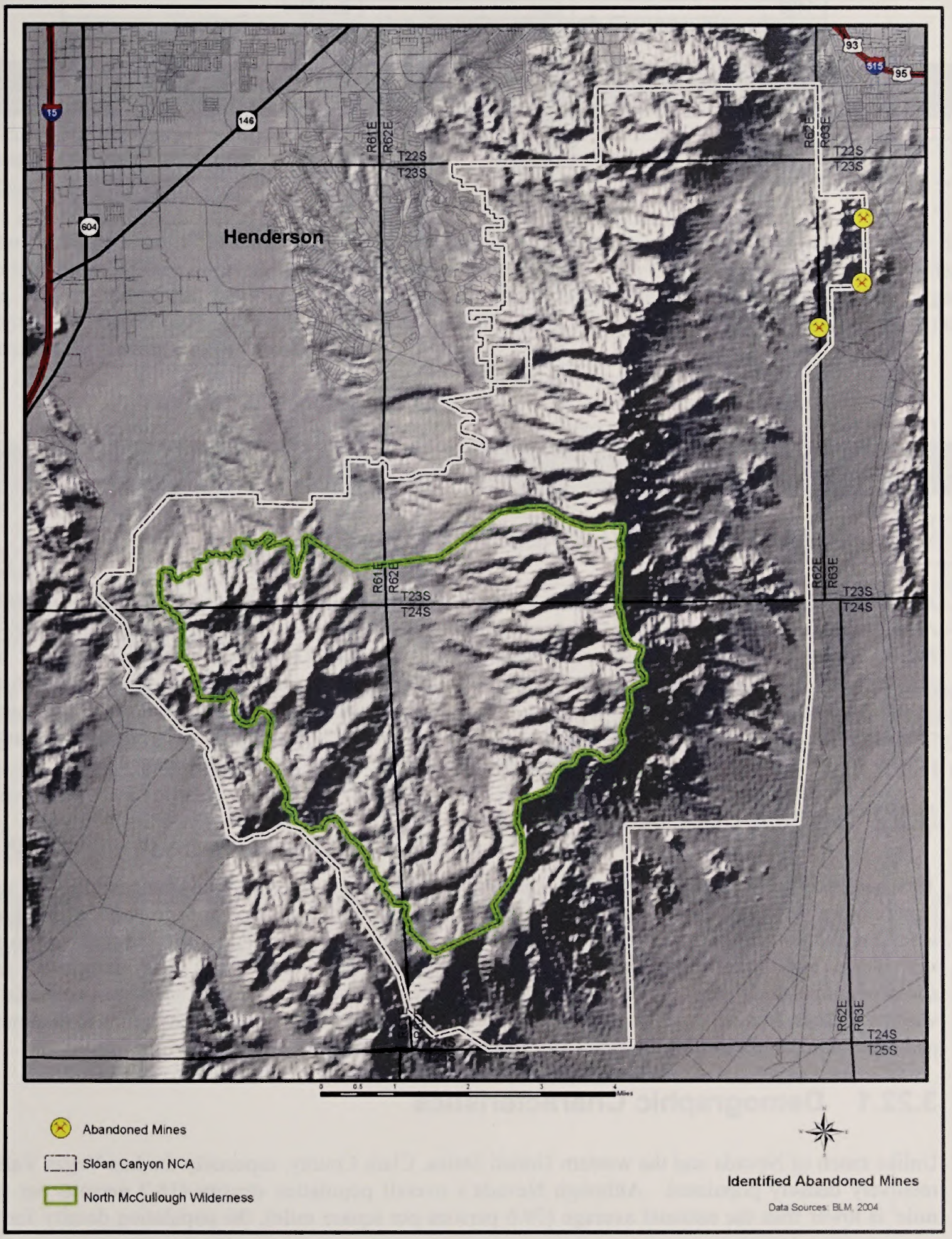


Table 3.10. Status of Abandoned Mine Sites Located Within the NCA

Site Number	Hazard Category	Method Secured
1400	Low	Backfilled
1401	Low	Backfilled
1402	Moderate	Backfilled
1403	Moderate	Backfilled
1404	Minimal	Backfilled
1405	High	Backfilled
1410	Moderate	Backfilled
1411	Moderate	Backfilled
1412	Low	Backfilled
1413	Moderate	Backfilled
1416	Low	Posted with Warning Signs
1417	Low	Backfilled
1427	Low	Backfilled
1466	Low	Barricaded
1467	Minimal	Posted with Warning Sign
1468	Low	Not Secured

Source: Durbin personal communication 2003.

During the Cultural Resources inventory, 11 inconsequential mining-related features such as crude, shallow adits or prospects, and cairns were found, as well as one more substantial site. This last site contains a 20-footshaft and remnants of a check-dam.

3.21 HAZARDOUS MATERIALS MANAGEMENT

At present, there is no known hazardous materials contamination within the NCA (Moran personal communication 2003). The BLM Hazardous Materials Program is responsible for compliance with federal, State, and local management requirements. All non-Department-of-Interior groups whose activities are within the NCA (e.g., claimants, concessionaires, contractors, permittees, and leasees) would be held responsible for compliance with federal, State, interstate, and local waste management requirements. The program is also responsible for aggressively pursuing potentially responsible parties to remediate their contamination of BLM lands and facilities or to recover costs of cleanup.

3.22 SOCIOECONOMICS

The socioeconomic context refers to the social, economic, and cultural connections of nearby communities with the NCA. It incorporates the region's social history and provides a baseline for assessing the potential impacts of RMP alternatives. Activities in the NCA have the potential to affect individuals and communities within Clark County; as such, the county was designated as the socioeconomic study area. Demographic and economic data for the study area have been collected from various sources. In most cases, a 10-year time frame was applied to examine recent trends in demographic and economic parameters for the study area discussed in detail below.

3.22.1 Demographic Characteristics

Unlike much of Nevada and the western United States, Clark County, especially the Las Vegas Valley, is relatively densely populated. Although Nevada's overall population density (18.2 persons per square mile) is lower than the national average (79.6 persons per square mile), the population density for Clark

County (173.9 persons per square mile) indicates its metropolitan nature. Clark County has more persons per square mile than either the State of Nevada or the United States, as shown in Table 3.11.

Table 3.11. Population Density of Clark County, Nevada

Geographic Characteristics	Clark County	Nevada	United States
Land Area (Sq. Miles)	7,910	109,826	3.5 Million
Persons per Sq. Mile	173.9	18.2	79.6

Source: U.S. Census Bureau 2003.

Clark County is one of the fastest growing counties in the United States. Between 1990 and 2000, its population more than doubled, increasing by more than 880,000. The City of Henderson, which borders the NCA to the north, grew even faster during that time, nearly tripling its population. The largest population centers in the study area are shown in Table 3.12. All cities within the county are reporting tremendous growth, except Boulder City.

Table 3.12. Population Centers Within Clark County, Nevada

City	Population 1990	Population 2000	Percentage Change in Population 1990–2000
Las Vegas	260,561	483,937	86%
Henderson	71,136	179,558	152%
North Las Vegas	52,387	117,975	125%
Boulder City	13,731	15,042	10%
Mesquite	2,046	9,595	396%
Unincorporated Areas	341,507	587,647	72%

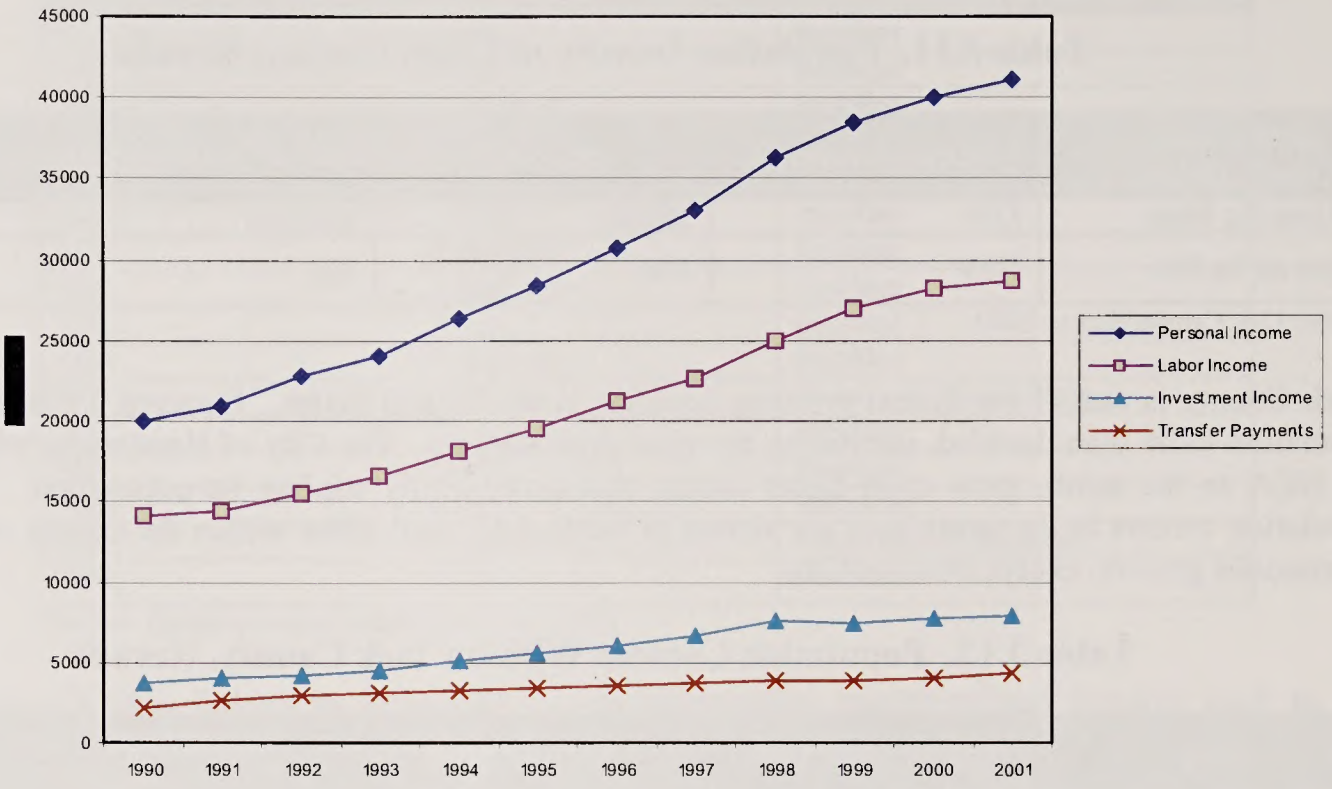
Source: U.S. Census Bureau 2004.

The primary reasons for the population surge include an influx of new residents moving to Clark County to take advantage of increased economic opportunities and relatively low cost of living. Employment in the construction, hotel/casino, education, government, and service industries provides an incentive for people to relocate to Clark County. In addition, many new residents move to the Las Vegas Valley to retire.

3.22.1.1 Per-Capita Personal Income

According to the U.S. Bureau of Economic Analysis, total personal income for Clark County almost tripled since 1990. As shown in Figure 3.25, total personal income increased by more than $21 billion during the 1990s, representing more than a 100-percent increase.

Figure 3.25. Personal Income Trends 1990–2001 (2000$)



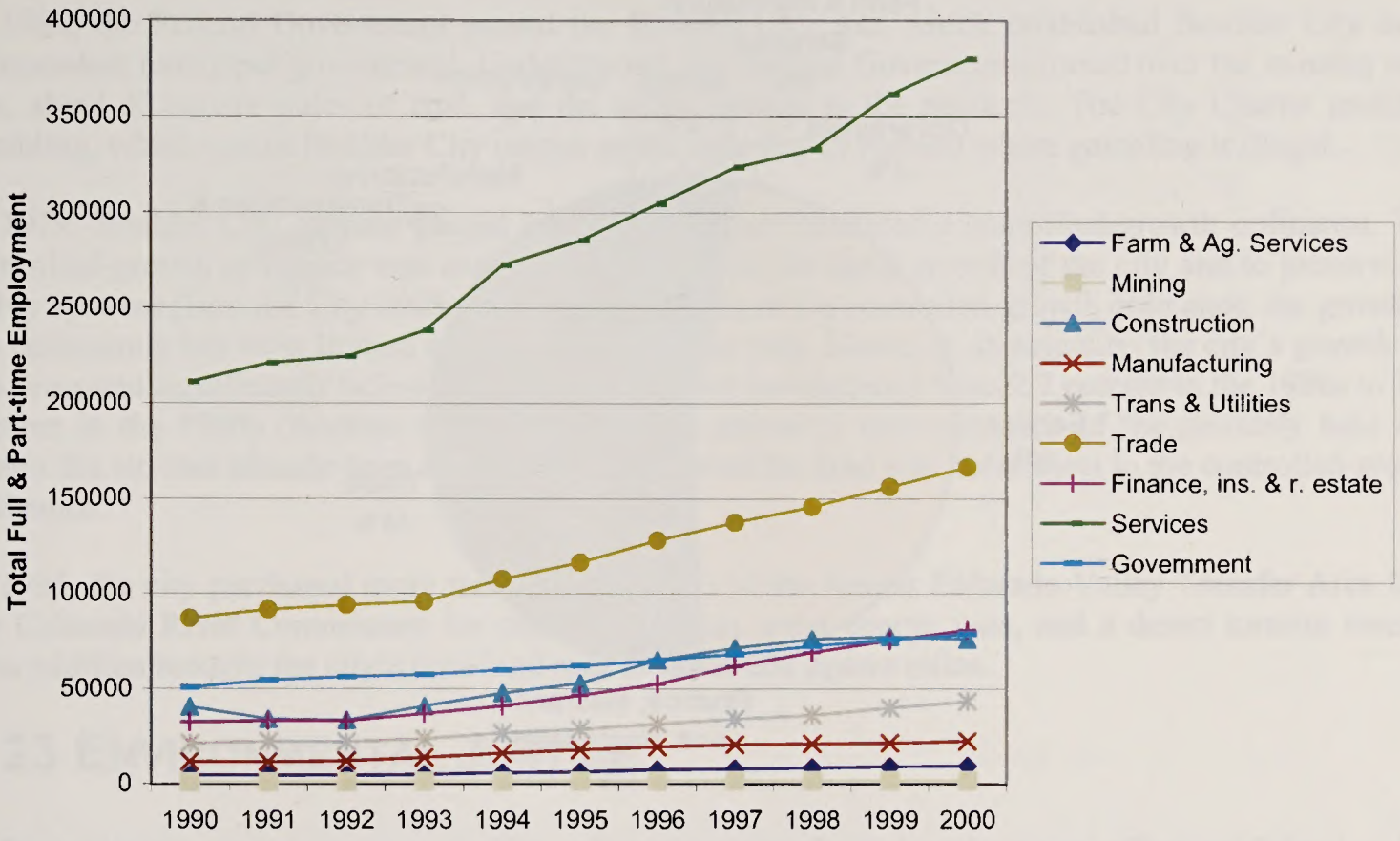
Source: U.S. Bureau of Economic Analysis 2002.

3.22.2 Economic Characteristics

Gaming and tourism are important parts of the economic fabric of Clark County. Gaming-related services employ a large percentage of the populace in the county, and the economic effects of gaming are realized throughout the area. The number of employees in gaming has steadily increased during the last 5 years with the exception of 2001. Overall gaming employment increased by 27,000 jobs between 1997 and 2001 (Nevada Department of Employment 2004c). In addition, gaming employment has consistently constituted about 25 percent of all jobs in the Las Vegas Metropolitan Statistical Area. The number of hotel and motel rooms in Las Vegas and gross gaming revenue has also grown over the last 5 years, and visitation has increased by approximately 4.5 million visitors (University of Nevada Las Vegas, Center for Business and Economic Research 2004).

Employment trends for Clark County by industry for 1990 through 2000 are summarized in Figure 3.26. The service sector leads industry in terms of employment growth having gained more than 168,000 jobs during the 1990s. This sector is followed by trade (79,000) and finance, insurance, and real estate (Fire, Insurance, and Real Estate [F.I.R.E]) (48,000).

Figure 3.26. Clark County Employment Trends by Industry, 1990–2000, SIC[i] data



Source: U.S. Bureau of Economic Analysis 2002

Figure 3.27 summarizes percentage of employment by industry for 2002. Services and trade dominate employment, composing 81 percent of total employment in the county.

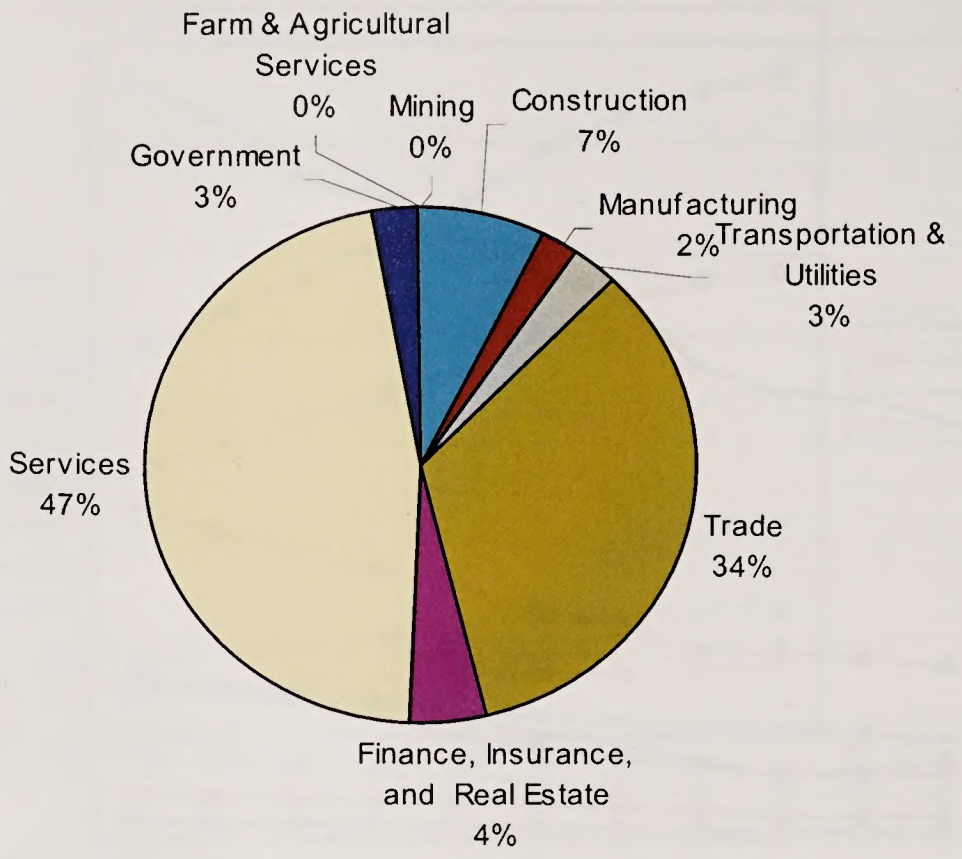
3.22.3 Social Conditions

Clark County is one of the fastest-growing areas in the country. As a result, the social fabric is also changing within the county. This section summarizes some of the trends occurring in the study area, including the two closest cities: the City of Henderson and Boulder City.

3.22.3.1 City of Henderson

The City of Henderson was incorporated in 1953 and has grown to be the second largest city in Nevada. It remains one of the top five fastest growing cities in the nation. The City of Henderson encompasses the southern rim of the Las Vegas Valley with access to the Sloan Canyon NCA, Colorado River, and Lake Mead. This picturesque city has been named among the "Top 50 Safest Cities" in the United States (Turner 2000) and among the "Top 50 Kid Friendly" cities in the United States (Population Connection 2001). The city also has nationally accredited fire, police, and parks and recreation departments.

Figure 3.27. Clark County Employment by Industry, 2002, NAICS Data



Source: U.S. Bureau of Economic Analysis 2002

The city started as a bedroom community for Las Vegas but is now becoming one of the nation's top retirement destinations (Turner 2000). The population growth has generally consisted of active seniors in their mid-fifties to mid-sixties or single young adults in their twenties to early thirties (Woodbury 2004). Excluding the lower volume of politically inactive transient population, the city's politics are viewed mostly as "old Nevada," focusing on schools and roads. However, the growing retirement community is beginning to demand services that may strain the social fabric of the City of Henderson (Rothman 2004).

Recreation has been an important thread in the City of Henderson's social fabric. The city's parks and recreation system, which are nationally recognized for excellence, would have the most extensive recreational trail system in the State as a result of the passage and implementation of the 1997 bond issue (City of Henderson 2003). This trail system can be expanded and enhanced through cooperative development with the BLM for the Sloan Canyon NCA. The City of Henderson was also the first city in Nevada to construct a public super-recreation center and aquatic complex; two more were constructed in 2000 and 2002 (City of Henderson 2003).

3.22.3.2 Boulder City

Boulder City is located about 25 miles southeast of Las Vegas, and its western boundary forms the eastern edge of the Sloan Canyon NCA. The incorporated city limits encompass about 200 square miles, although the developed portion of the city is only about 5 square miles (Boulder City 2003).

Boulder City was created for the construction of Hoover Dam between 1931 and 1935 and housed over 4,000 workers. Once the dam was completed, the Federal Government changed the basic function of the city to the headquarters of several government agencies involved in the dam's water and power

operations. Boulder City was supervised and regulated by the Bureau of Reclamation, and the Federal Government owned city land.

In 1958, the Federal Government passed the Boulder City Act, which established Boulder City as an independent municipal government. Under the act, the Federal Government turned over the existing town site, about 33 square miles of land, and the utility system to the residents. The City Charter prohibits gambling, which makes Boulder City unique as the only city in Nevada where gambling is illegal.

In 1979, Boulder City citizens passed a referendum that instituted a controlled-growth ordinance. This controlled-growth ordinance was enacted in response to the rapid growth of the city and to preserve the utility systems (Boulder City 2003). Since the inception of the controlled-growth ordinance, the growth of the community has been limited to about 3 percent per year. However, in actuality, the city's growth rate has remained significantly below the 3-percent cap and has declined from 2.7 percent in the 1980s to 1.76 percent in the 1990s (Boulder City 2003). This is primarily because much of the privately held land within the city has already been developed, and most of the land was not subject to the controlled-growth ordinance.

In 1995, the city purchased more than 100,000 acres of the former Eldorado Valley Transfer Area from the Colorado River Commission for public recreation, solar energy uses, and a desert tortoise reserve. This addition brought the city's total land area to about 200 square miles.

3.23 Environmental Justice

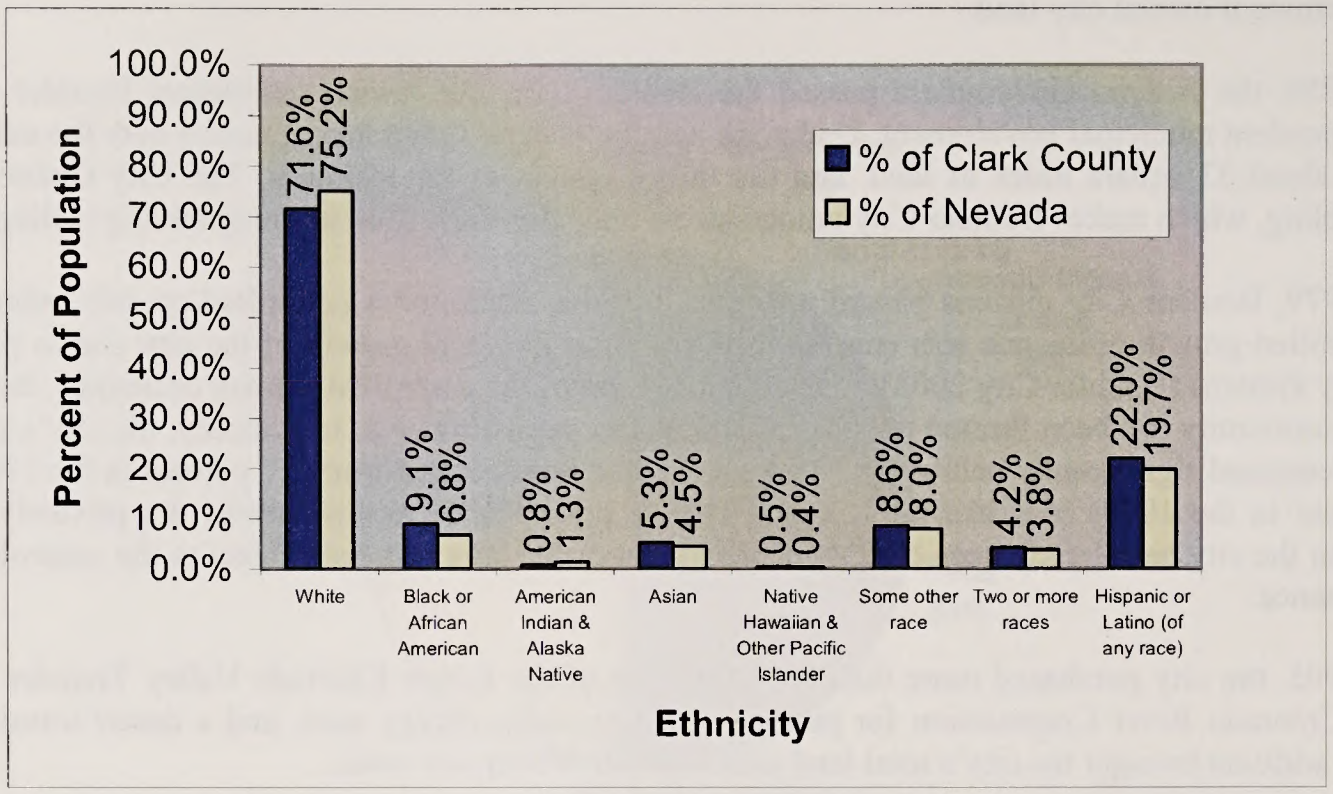
Federal agencies must identify and address disproportionately high and adverse effects of federal actions on the health or environment of minority and low-income populations (Executive Order 12898, Federal Action to Address Environmental Justice in Minority Populations and Low-Income Populations).

Relevant census data for Clark County were collected to determine whether the populations residing within the study area constitute an "environmental justice population" by meeting either of the following criteria:

- At least one-half of the population is of minority or low-income status.
- The percentage of population of minority or low-income status is at least 10 percentage points higher than for the entire State of Nevada.

Figure 3.28 shows distribution of the population by ethnicity for the study areas and the State of Nevada during 2000. Only slight differences in ethnic composition exist between the study area and the state. The study area reported a slightly higher percentage of minorities than the statewide figures, including Black or African American and Hispanics or Latinos, of any race. The percentage of other ethnic groups is small and very similar to Nevada as a whole. Although no Native American lands border the NCA, approximately 0.8 percent of Clark County's population is American Indian and Alaska Native. Clark County does not constitute an "environmental justice population" because it does not meet either of the criteria listed above.

Figure 3.28. Population Ethnicity for Clark County and State of Nevada



Source: U.S. Census Bureau 2003

The BLM consulted with 11 Native American tribes and 4 Paiute bands that claim ancestral ties to, or traditional cultural use of, the lands included within the NCA. The tribes identified one culturally significant place, the Sloan Canyon Petroglyph Site within the NCA. Sloan Canyon is listed on the NRHP as an archeological site, and it also meets Criterion A as a Traditional Cultural Property.

Table 3.13 summarizes the median household income for Clark County, Nevada, and for the United States for 1999. This table shows that the median household income in Clark County was above the State and national levels for 1999. Poverty levels for each area are summarized in Table 3.14. The percentage of persons considered living below the poverty level was slightly higher in Clark County than throughout Nevada but below national poverty levels. These two tables suggest that Clark County does not have low-income populations that could be affected by BLM actions. Nonetheless, smaller populations of minority and/or low-income persons could be affected by BLM actions.

Table 3.13. Median Household Money Income, 1999

Clark County	Nevada	United States
$44,616	$44,581	$41,994

Source: U.S. Census Bureau 2003

Table 3.14. Percentage of Persons Below Poverty, 1999

Clark County	Nevada	United States
10.8%	10.5%	12.4%

Source: U.S. Census Bureau 2003

U.S. Census Bureau Track Data were used to determine if smaller populations of minority and/or low-income persons would be affected by BLM actions at the Sloan Canyon NCA. The Tracks surrounding

the Sloan Canyon NCA are Clark County, Nevada, Tracks 53.31, 53.39, 53.45, and 55.01. The entire Sloan Canyon NCA is contained within Clark County, Nevada, Track 57.10. None of the smaller populations within the Track Data meets either requirement to be classified as an "environmental justice population."

The Sloan Canyon NCA is approximately 48,438 acres or 76 square miles. Clark County itself, by contrast, is about 7,910 square miles. The NCA constitutes only 1 percent of the land area in Clark County, and the county itself accounts for 7 percent of the land area in the State of Nevada.

CHAPTER FOUR

Environmental Consequences

4. ENVIRONMENTAL CONSEQUENCES

This chapter evaluates potential environmental impacts that could occur from implementing the management actions described in Chapter 2 of this Proposed Resource Management Plan (PRMP). The baseline used for determining the potential impacts is the current condition of the resources as described in Chapter 3. In general, this chapter is organized by resource topic and contains potential impacts from implementing the proposed management actions. The exception to this organizational structure is impacts from the preferred northern corridor for the North McCullough Road right-of-way (ROW). For ease of comparison, the impact presentation in that section is reversed: The text discusses how the recommended corridor could affect other resources. Discussions of cumulative impacts, irreversible and irretrievable commitment of resources, unavoidable adverse impacts, and the relationship between local short-term uses and long-term productivity conclude the chapter.

4.1 INTRODUCTION

This chapter determines the potential for significant consequences to the natural and human environments should this PRMP be implemented. The analysis includes determinations of three types of impacts, where applicable: direct, indirect, and cumulative. The duration, intensity, and context (local, regional, or national effects) of impacts are interpreted, where possible.

The PRMP was constructed to avoid or reduce resource impacts as much as possible, so—should the management actions be implemented—the potential impacts discussed in this chapter should be considered unavoidable. If the analysis for a specific resource indicated that no impact would occur from implementing the PRMP, or that the impact magnitude on that resource would be negligible, the resource was not included in this chapter. For example, no impacts were identified for actions related to special designations (areas of critical environmental concern [ACEC]), wildland fire management, water resources and quality, geology, minerals, abandoned mines, and hazardous materials. Similarly, if there were no impacts from a specific action or the impact of that action would be negligible, an impacts discussion was not included.

4.1.1 Methodology

Impact analysis is a cause and effect process. The detailed impact analyses and conclusions within this PRMP are based on the planning team's knowledge of resources and the NCA, reviews of existing literature, and information provided by experts in the Bureau of Land Management (BLM), other agencies, and tribes. The plan was configured to maximize benefits and minimize adverse effects on both ecosystem function and the human environment.

This PRMP is based on the best available data for each resource, but because of the National Conservation Area's (NCA) undeveloped nature, specific resource information was often unavailable. In some cases, additional data were required as part of the planning effort to provide sufficient information upon which to base informed judgments. For example, some of the independent studies conducted as part of this planning process included the Native American traditional use of the area, archaeological site composition and distribution, and vegetation community surveys.

Impacts from resources were analyzed and are discussed in detail commensurate with resources issues and concerns identified through scoping. Geographic Information Systems (GIS) analyses and data from field investigations were used to quantify effects where possible, however, in the absence of quantitative data, best professional judgment was used. Acreage figures and other numbers used in this analysis were

approximate projections for comparison and analytic purposes only. As such, they do not reflect exact measures of precise calculations; at times, impacts are described using ranges of potential impacts or in qualitative terms.

4.1.2 Impact Terminology

This chapter uses the terms "impacts" and "effects" interchangeably and the terms "increase" and "decrease" for comparison purposes. Other terms used to describe impacts are defined as follows:

- **Direct effect:** These are effects that are caused by the action and occur at the same time and place.
- **Indirect effect:** These are effects that are caused by the action and occur later in time or are removed in distance, but are still reasonably foreseeable.
- **Cumulative effect:** These are results from individually minor but collectively significant actions taking place over time.

Intensity/Magnitude

- **Negligible:** The impact is at a lower level of detection, and there would be no measurable change.
- **Minor:** The impact is slight but detectable, and there would be a small change.
- **Moderate:** The impact is readily apparent and could result in a small but permanent measurable change.
- **Major:** The impact is large, and there would be a highly noticeable long-term or permanent measurable change.

Context

- **Localized impact:** The impact would occur in a specific site or area. In comparing changes to existing conditions, the impacts would be detectable only in localized areas.
- **Broad impact:** The impact would occur only within the Sloan Canyon NCA but would be larger than the localized impact.
- **Regional impact:** The impact would occur within southern Nevada.
- **National impact:** The impact would occur within the United States.

Duration

- **Short-term effect:** The effect would occur only during or immediately after implementation of the action.
- **Long-term effect:** The effect could occur for an extended period after implementation of the action. The effect could last several years or longer.

To the extent possible, impacts were identified objectively, without characterization as positive or negative, so that the reader might make his or her own judgment. The reason for this approach may be apparent in the recreation discussion that follows. For example, an action may have a predictable outcome of significantly reducing contacts between visitors and the NCA staff. Visitors who value solitude and independence may regard this outcome as a major positive effect; those who value educational experiences with staff experts may regard it as negative. However, for broader scope issues such as providing educational opportunities in general, predictable positive and negative outcomes were described.

4.2 Impacts From North McCullough Road Rights-Of-Way

The Sloan Canyon NCA Act directed BLM to grant the City of Henderson a right-of-way (ROW) for the North McCullough Road and Trail (N-65874) and for the NCA management plan to include a recommendation for the location of the ROW. ROW application N-65874, submitted to the BLM Las Vegas Field Office, contained two potential corridors for the development of the North McCullough Road and Trail, a northern and southern option. The road is intended to be a paved rural road, constructed to provide access to the NCA, trailheads, and overlook points. The road is to be constructed with minimal disturbance to existing grades and vegetation, and the eastbound and westbound lanes would be separated by a natural median. The roadway would be designed for a speed limit of 35 miles per hour (mph) unless a different speed was warranted in certain areas. Related structures could include drainage improvements, bighorn sheep crossings, and parking for trailheads and overlook points. The overall length of the project would be approximately 7 miles.

BLM, in conjunction with the City of Henderson, conducted a review of the potential northern and southern corridors, which consisted of field surveys and resource analyses. A potential road alignment was described for each corridor, and natural, cultural, and design parameters were used to compare the alignments or corridors, depending on the detail of available data. Based on the resource analysis contained in the Draft RMP/EIS, input from the public, and discussions with the cooperating agencies, BLM recommends the northern corridor as the location for the issuance of the ROW. The potential impacts of constructing a road along the northern corridor is described differently in this section than the impacts for all other resources in this chapter. Instead of discussing the impacts to one resource from another (e.g., impacts to wildlife from facilities), this section presents how the potential road and tail would affect other resources (e.g., the impacts of the Northern Corridor on wildlife).

Table 4.1 presents the potential environmental, design, and construction impacts for the Northern Corridor for the major resource categories. This section does not, however, discuss all of the impacts that could occur when construction and operation of the North McCullough Road begins. Because the Sloan Canyon NCA Act requires only that BLM recommend a location for the North McCullough Road and Trail ROW in this plan, further study and environmental reviews would be needed once the road and trail are further along in the planning stages.

Table 4.1. Impacts from the North McCullough Road and Trail - Northern Corridor

Resource Area	Impacts from Northern Corridor
Recreation	Allows access to recreation opportunities hiking, equestrian use, mountain biking in numerous basins and canyons.
Visual Resources	Provides numerous vistas for scenic overlook opportunities and multiple view sheds along the alignment. Surrounding area can be restored to natural conditions adjacent to roadway and trail.
Vegetation	Contains potential Rosy two-tone beardtongue habitat; 61 acres.
Wildlife	Contains the following potential habitat: • Bighorn lambing habitat: 0 acres • Bighorn winter habitat: 251 acres • Desert tortoise: 1,042 acres • Gila monster: 1,283 acres • Chuckwalla: 394 acres • Phainopepla: 41 acres
Hydrology	Potential erosion at drainage crossings. Drainage structures would need to be designed with erosion protection.
PM10	PM 10 generated: • Construction: 0.265tons/ac/ month: 11.1 tons/yr • Operational: 42.4 tons/yr (2.1E-3 tons/yr/Vehicle Mile Traveled)
Roadway length	Total length: 6.56 miles.
Disturbance	Total disturbance: 41.9 acres.
Cut/Fill	Total Cut: 30,109 cubic yards Total Fill: 102,621 cubic yards
Grades	Maintain a rolling grade along the alignment with shorter lengths at no more than 12 grade.
Constructability	Would have to cross numerous washes.
Traffic Loading	Per City of Henderson Planning Department, assumed average daily traffic:3021 vehicles.
Vehicle Miles Traveled	Per City of Henderson Planning Department, assumed vehicle miles traveled per day: 19,818 miles.
Cost	Estimated construction cost: 13,000,000.

Source of engineering/cost data: City of Henderson letter report

4.3 Impacts To Recreation

The potential impacts of planning decisions on the visitor experience, and their magnitudes, depend on the expectation and values of the individual user. A particular action could benefit some users and have a negative effect on others. Sensitivity to impacts would vary among user types and would be different between new users and traditional users.

Because of the NCA's undeveloped nature, recreation management of the NCA is intended to change over time as monitoring-based management decisions are implemented. Recreation activities within the NCA are expected to increase greatly as public awareness of the NCA grows and as the population of Clark County continues to increase. The primary use areas of the NCA are likely to be the North McCullough Wilderness, the Petroglyph Management Area, designated trails, and areas surrounding developed facilities. The NCA and its visitors would be monitored; if visitation is causing resource

damage, user conflict, or crowding at attraction areas, actions could be taken to enhance the visitor experience and protect resources.

Impacts to recreation from the PRMP could occur in the following resource areas: recreation, North McCullough Wilderness, cultural resources, visual resources, interpretation, facilities, lands and realty, transportation, vegetation management, wildlife management, and livestock grazing.

4.3.1 To Recreation from Recreation

Management Emphasis Areas

Dividing the NCA into management emphasis areas (MEA) as shown in Figure 2.1 would maintain nonmotorized recreation opportunities by emphasizing primitive and nonmotorized uses on 32,411 acres (approximately 67 percent) of the NCA. Opportunities for more visitor facilities and motorized travel would be increased or maintained by designating 15,643 acres (approximately 32 percent) of the NCA for roaded natural opportunities. Opportunities for the most developed types of recreation would be increased by designating 398 acres (less than 1 percent) of the NCA for developed recreation. Conflicts between user types could increase in the more developed management emphasis areas, where use would be higher.

Visitor Experience

Implementing user fees in specific areas of the NCA could have a minor impact on the pattern, timing, and total number of visits to the NCA. Some visitors might not be willing to pay for access, regardless of cost, so recreation use could be displaced from fee areas to non-fee areas. The frequency of visits by local and regional visitors also could decrease, but fees would not be likely to influence levels of visitation from outside the local area. Fees could improve maintenance of recreation facilities by providing additional funding for the NCA.

Installing visitor registers would help establish the visitor use baseline, could help monitor changes to that baseline, and could provide a mechanism for receiving feedback on the NCA's visitor experience.

Hiking/Equestrian Use/Mountain Biking

Requiring that hiking be limited to designated trails, once constructed, in approximately 27 percent of the NCA would decrease opportunities for primitive off-trail hiking, although visitors probably would welcome the opportunity for a trail system in higher-use areas. Before trails were constructed, cross country hiking could occur throughout the NCA. After trail construction, opportunities for primitive, off-trail hiking would be provided in the remaining 35,910 acres (approximately 73 percent) of the NCA. Allowing equestrian use within the NCA, either on designated trails or cross-country, as shown in Figure 2.3, would maintain or increase horseback-riding opportunities. Allowing mountain biking only on a designated and constructed system of multiple-use trails (Figure 2.4) would have minor impacts by reducing potential user conflicts and would increase mountain biking opportunities because current opportunities for mountain biking have been minimal as a result of road and route conditions.

Allowing only horses, burros, or mules to transport people and supplies within the NCA would restrict the use of other types of pack animals (e.g., llamas, goats) for trail and cross-country hiking. This action would limit recreational opportunities for users of these nontraditional pack animals.

Trails

Designing and constructing a trail system to accommodate multiple trail uses, with moderate levels of development providing access to an array of recreational destinations and loop trail opportunities, would increase and diversify trail-based recreation opportunities throughout the NCA. It would also disperse recreation uses to more of the NCA and could be designed to reduce user conflicts and minimize impacts to sensitive natural and cultural resources. Adding trails to the trail system to improve visitor experiences when such additional trails would not cause substantial impacts to cultural and natural resources would result in increased opportunities for trail-based recreation over the long term. Conflicts among trail users would be reduced by the ability to add new trails, and the quality of recreation experiences could be diversified and expanded.

Evaluating unauthorized constructed and social trails and considering whether to close and restore or adopt them into the trail system could cause a minor decrease in recreation opportunities but would maintain or improve resource conditions and limit inappropriate uses.

OHV

The Sloan Canyon NCA Act allows the use of motorized vehicles only on designated roads and trails, so not designating any routes or trails would eliminate this recreational activity from the NCA. Prohibiting off-highway vehicles (OHV) throughout the NCA would eliminate conflicts with nonmotorized visitors and would cause long-term moderate decreases in physical damage to trails and other resources. OHV use probably would be displaced to areas outside the NCA.

Dogs

Allowing dogs in the NCA, if they were on leash, only in designated areas (Figure 2.5) would allow recreational opportunities for dog owners while protecting sensitive resource areas and wildlife in the remainder of the NCA.

Nighttime Use

Allowing primitive and dispersed camping in designated areas of the NCA outside the Petroglyph Management Area would provide opportunities for camping or other overnight uses on approximately 53 percent of the NCA (Figure 2.6). Allowing campfires in the NCA—in fire pans or blankets, that required the importation of all fuel, and required all fire waste products be packed out—would minimize multiple fire rings, trash, and human-caused wildfire and increase visitors' sense of a primitive experience, although it would place a logistical burden on the user.

Restricting the use of the Petroglyph Management Area to Day Use Only, could reduce visitor recreational opportunities, but it would provide maximum protection for sensitive cultural resources and would facilitate wildlife use of Sloan Canyon.

Requiring permits for overnight parking would enhance resource management and the visitor experience by providing a mechanism to support overnight use of the NCA, such as camping.

Other Recreational Use

Allowing bouldering and rock climbing, without permanent anchors, would provide opportunities for visitors who enjoyed the sport. Climbing would be restricted in identified sensitive resource areas, so

potential impacts could be eliminated. Rock climbing could conflict with other recreation activities, such as hunting.

Prohibiting rock hounding in the NCA, would restrict the recreational collection of geologic material but, would provide the maximum protection for the NCA.

Closing the NCA to geocaching and shooting (other than permitted hunting) would have moderate impact on some users by eliminating these types of recreation. Closures could reduce recreation conflicts and help preserve cultural and natural resources but could result in decreased visitor satisfaction.

Prohibiting hunting in the Petroglyph Management Area could impact hunters by restricting access to Sloan Canyon, but it provides important safety element in this high-use area.

Special Recreational Permits

Requiring special recreation permits (SRP) for commercial, competitive, and vending uses, including for organized groups, would have a minor impact on recreation by maintaining consistent uses within the management emphasis areas and avoiding potential use conflicts between users. For example, issuing SRPs to outfitters and guides for wildlife hunts within the NCA would moderately decrease conflicts because hunting could be located in appropriate areas and other recreation users could be informed of the activity. Conducting ongoing evaluations of the number, type, and appropriateness of SRPs and considering issuance limits could have long-term, beneficial impact by decreasing conflict among user groups, decreasing impacts to natural and cultural resources, and maintaining opportunities for all appropriate types of recreation within the NCA. Limiting SRPs could cause a minor loss of economic opportunity for commercial outfitters.

4.3.2 To Recreation from the North McCullough Wilderness

Adopting a flexible and responsive approach to managing recreation uses of the Wilderness would have a major, long-term beneficial effect on the visitor experience because management approaches could be modified on the basis of resource and visitor monitoring within the limits of the Wilderness Management Plan (Appendix C) and the thresholds established through a process similar to limits of acceptable change (LAC). Establishing resource baselines before the predicted large increase in visitation occurred in the Petroglyph Management Area would enable BLM to monitor and predict changes to wilderness characteristics and to modify recreation management actions as necessary.

Visitation

Limiting visitation to numbers that would not cause adverse impacts to wilderness characteristics would maintain or enhance existing primitive and unconfined recreation experiences in the Wilderness, as described in Appendix C, Wilderness Management Plan. However, establishing limits could have a moderate impact on users if they were restricted from accessing specified areas.

Petroglyph Management Area

Once adequate NCA infrastructure is in place, allowing periods of both guided and self-guided use of the Petroglyph Management Area would provide maximum resource and wilderness characteristics protection as well as giving visitor's choice in how to visit the site. During high-use periods, all visitors would be required to join a guided tour, which would have major, long-term impacts on spontaneous and unconfined recreation use but also would decrease crowding and noise. Allowing permits, self-guided

access to the Petroglyph Management Area during low-use periods would maintain limited opportunities for unconfined recreation while decreasing crowding and noise by controlling permit numbers.

Allowing no more than one guided group in the Sloan Canyon Petroglyph Site at a time would reduce crowding and user conflicts. The maximum group size at the Petroglyph Site during guided tour periods would be 20, during self-guided periods would be 25, and 35 people could be at the Petroglyph Site at one time from organized groups. Consequently, during unguided periods, the maximum number of people in the Sloan Canyon Petroglyph Site could be 25 from permits and 35 from an organized group. Issuing a maximum of 25 self-guided permits per hour could mean that some visitors would have to wait before being their walk into the Petroglyph Management Area. Requiring organized groups of between 10 and 35 people to obtain a use authorization and be accompanied by a guide would maintain opportunities for group visitation in Sloan Canyon and decrease crowding and noise; however, it would decrease the opportunity for spontaneous and unconfined recreation use.

Limiting visitor use of the Sloan Canyon Petroglyph Site to the canyon bottom and designated trails (e.g., proposed Petroglyph Trail and Cowboy Trail) within the Petroglyph Management Area would decrease impacts to cultural and natural resources from inappropriate use but would maintain opportunities to view and photograph cultural resources on the canyon walls.

In the Wilderness, designating both the 0.07-mile Petroglyph Trail and the 0.86-mile Cowboy Trail would help protect natural and cultural resources, as well as wilderness characteristics, in Sloan Canyon. Constructing the Cowboy Trail would provide visitors who can not climb over the rockfall a means of accessing the Sloan Canyon Petroglyph Site. Designating and constructing 1.4-mile the Hidden Valley Trail would help protect resources and facilitate avoidance of the wildlife water guzzler.

Controlling access to the Petroglyph Management Area with the visitor center from the north, ongoing patrols, and permitting access from the Hidden Valley Trail would decrease opportunities for primitive and unconfined recreation by increasing the frequency of visitor contact with NCA staff and management controls. During unguided periods, rangers could issue permits to visitors entering the Petroglyph Management Area from other access points and this would further increase interactions with NCA management. Requiring nonguided visitors to experience an interpretive presentation on appropriate visitor use and site etiquette would mean more management interaction but probably would add to the natural and cultural experience.

Designating and constructing trails from Hidden Valley and the visitor center to the Petroglyph Management Area would enhance opportunities to view cultural resources and increase visitor satisfaction. Allowing minimal permanent developments for the purposes of resource protection and enhancement of wilderness values could decrease opportunities for primitive and unconfined recreation but could increase the quality of wilderness recreation by providing improved access, increased information, and enhanced resource protection.

Allowing limited amounts of signage within the Petroglyph Management Area could increase information available to visitors, thereby improving visitor knowledge of the NCA, reducing incidents of visitors getting lost, and minimizing inappropriate recreation use. Placing signage that declares limited access to the Petroglyph Management Area would decrease incidents of visitors inappropriate visitation would but also would decrease naturalness and visitors' sense of primitive, unconfined recreation.

Remainder of the Wilderness

Allowing cross-country travel by foot and horseback would be allowed throughout the Wilderness, outside of the Petroglyph Management Area. This may result in social trails to the more desirable

destinations within the Wilderness. Dispersing visitors using social trails would enhance primitive and unconfined recreation opportunities by controlling the total amount of trails. Blocking and rehabilitating social trails not desired for adoption into the trail system or use could decrease opportunities for primitive and unconfined recreation in the short-term through the addition of temporary developments.

Rehabilitating wilderness disturbances according to a minimum requirement/minimum tool analysis for each project could maintain opportunities for primitive and unconfined recreation but, depending on restoration actions, could decrease the quality of primitive and unconfined recreation during restoration efforts.

Allowing primitive and dispersed camping in the Wilderness, outside the Petroglyph Management Area and the Hidden Valley Trail area (Figure 2.6), maintains opportunities for camping or other overnight uses in the majority of the Wilderness. Requiring campers to be self-reliant, providing no developed camping sites, water, or other amenities, and rehabilitating campsites within one-quarter mile of each other would ensure a primitive and unconfined recreation experience.

Requiring that campfires be made from packed-in fuels, prohibiting the burning of naturally occurring fuels, limiting fires to fire pans or fire blankets, and making campers pack out fire waste products would minimize multiple fire rings, trash, and human-caused wildfire and increase visitors' sense of a primitive experience, although it would place a logistical burden on the user. However, the limited natural fuels, the relatively good weather in the Mojave Desert, and the availability of portable gas, jellied petroleum, or pressurized liquid fuel stoves for cooking makes fires a "luxury."

Allowing bouldering and rock climbing, without permanent anchors, in the Wilderness, outside the Petroglyph Management Area and identified sensitive resource areas, would provide recreational opportunities; however, it could result in conflict with other recreation activities, such as hunting.

Prohibiting dogs within the Wilderness would provide strong resource protection although it could limit recreational opportunities for dog owners.

Signage

Installing low-profile, natural-color signs outside the Wilderness at major access routes that display route information, maps, and visitor information would aid visitors by providing information on ways to enter and experience the area. Primitive and unconfined recreation experiences would be slightly decreased by increased infrastructure at trailheads. Installing visitor registers would help establish the visitor use baseline, could be used to monitor changes to that baseline, and would provide a mechanism for receiving feedback on the NCA's visitor experience.

Disturbance

Rehabilitating vandalized and disturbed areas within the Wilderness, such as two-track roads, to natural conditions, would increase the character of the Wilderness. Nonetheless, the restoration activities themselves could produce minor to moderate short-term impacts to the visitor experience by decreasing solitude because of the presence of the work crews and naturalness from the activity intrusion.

4.3.3 To Recreation from Cultural Resources

Allowing traditional use in the Petroglyph Management Area could cause minor, short-term decreases in available recreation opportunities when these activities took place. Assigning any cultural resource site or site type to the traditional or conservation use categories would produce a minor decrease in recreation

opportunities associated with that site by restricting use of the resource for public viewing and appreciation. Assigning any cultural resource site or site type to the public use category would maintain or increase recreation opportunities to view and appreciate cultural resources.

4.3.4 To Recreation from Visual Resources

Designating visual resource management (VRM) classes as shown in the PRMP (Figure 2.9) would designate approximately 6,600 acres (VRM Class III) where recreation facilities would be located. VRM Classes I and II would place stringent restrictions on the development of recreation facilities on approximately 86 percent of the NCA.

4.3.5 To Recreation from Interpretation

Preparing a Comprehensive Interpretive Plan in conjunction with the tribes, cooperating agencies, and volunteer organizations would have a long-term, major impact on recreation. With enhanced interpretive background and up-to-the-day site information, visitors would be better able to plan their recreational trips to the NCA. Policies to develop interpretive outreach would enhance the recreation experience and provide exposure to the significant resources of the NCA. These interpretive and educational actions would increase the visitor's sense of appreciation and understanding of resources, including the visitor's awareness of important and sensitive cultural values. Indirect benefits would result from a decrease in inadvertent visitor impacts, which would enhance the ability to manage critical physical and social resources.

Implementing an anti-litter program and public awareness campaign would have a moderate impact by providing volunteer opportunities, visitor satisfaction in a litter-free NCA, and a more natural, healthy, and functioning ecosystem.

Allowing the use of low-profile, unobtrusive media in high-use areas would decrease opportunities for primitive and dispersed recreation by adding management presence and infrastructure visible to visitors. Any interpretive media available to visitors could enhance recreation experiences by increasing visitor knowledge and appreciation of NCA resources.

4.3.6 To Recreation from Facilities

Constructing a visitor center near the NCA boundary at the north entrance to Sloan Canyon would have major, long-term impacts by increasing the degree of management presence and infrastructure near the canyon by providing visitor facilities, controlling visitor access, and providing visitor information. Constructing parking lots with interpretive kiosks and vault toilets at Hidden Valley Trailhead, Dutchman Pass Trailhead, and Quo Vadis Trailhead would decrease primitive visitor experiences by increasing management and infrastructure presence but also could enhance recreation opportunities by providing desired facilities and information and accommodating additional visitation and activities such as equestrian use, mountain biking, and hiking.

Providing offsite information in existing facilities throughout the City of Henderson could increase opportunities for residents and visitors to learn about the NCA and its recreation opportunities.

4.3.7 To Recreation from Lands and Realty

Considering applications for new and amended ROWs that would benefit the NCA could increase and enhance recreation opportunities if they supported recreation facilities, eliminated disturbances in recreation areas, or improved naturalness that would be important to dispersed recreation.

Prohibiting commercial filming in the Petroglyph Management Area would eliminate potential conflicts between visitors and film crews. Limiting filming in the remainder of the NCA to developed areas, restricting timing, prohibiting disturbance, and limiting the numbers of cars and people associated with each permit would minimize conflicts between visitors and film crews.

4.3.8 To Recreation from Transportation

Installing physical barriers, signage, or completing vegetation restoration on closed roads and routes would have a moderate long-term impact to visitors by decreasing motorized trespass.

Passage of the Sloan Canyon NCA Act closed all roads and routes in the NCA to public motorized vehicle use. Consequently, designating the Dutchman Pass Road as open to registered vehicles would increase recreation opportunities by allowing access to an area of the NCA historically receiving the highest amounts of use. Designating the Quo Vadis Mine Road and Rattlesnake Canyon Road as open to vehicles also would increase access to the eastern portion of the NCA.

4.3.9 To Recreation from Vegetation Management

Restoring surface disturbances and striving for optimum species diversity would have a moderate, long-term beneficial impact to recreation by increasing the naturalness of the NCA and enhancing the experience of visitors in an environment free from human disturbance.

Focusing restoration efforts in the nonmotorized and roaded natural portions of the NCA would enhance dispersed and developed recreation opportunities by improving naturalness in the majority of the NCA. Eliminating the ability for casual and commercial collection of vegetation, except for scientific purposes, would provide strong protection for the natural resources; however, it would eliminate opportunities for recreational collection of plants and seeds in the NCA.

4.3.10 To Recreation from Wildlife Management

Working cooperatively with agencies such as the Nevada Department of Wildlife (NDOW) to promote healthy and viable wildlife populations in the NCA would provide continued opportunities for wildlife viewing. Avoiding construction of recreation developments, such as trails, within a quarter mile of wildlife water developments could have a minor impact on visitors who wished to go directly to the water developments; overall, however, this action would be likely to lead to continued wildlife population health. There could be a short-term, minor decrease in visitor satisfaction because of disruptions from construction and maintenance if any new wildlife water developments were installed.

Limiting the designation and construction of trails, facilities, and ROWs within known lambing areas could restrict the location and extent of trail-based recreation opportunities. Avoiding trail construction in areas of known bighorn sheep movement between the North and South McCullough Ranges would not affect the location and extent of trail-based recreation opportunities. Seasonal restrictions on trail construction could decrease recreation opportunities or decrease visitor satisfaction by delaying the need for trail construction or repair. Employing small area or seasonal closures to protect wildlife species

during critical life periods could maintain or slightly reduce opportunities for recreation, depending on the nature of the closure.

Eliminating the ability for casual and commercial collection of reptiles, would provide strong protection for these natural resources however it would eliminate opportunities for recreational collection. Educating visitors to be sensitive to raptor nesting could enhance recreation opportunities by providing increased visitor information.

4.3.11 To Recreation from Livestock Grazing

Eliminating the construction of additional range improvements for grazing purposes would maintain existing opportunities for primitive, dispersed recreation.

4.4 Impacts To The North McCullough Wilderness

4.4.1 To Wilderness from Recreation

Requiring that hikers remain on designated trails in the Petroglyph Management Area (2 percent of the total Wilderness acreage) would maintain naturalness by limiting social trails and reducing impacts to sensitive cultural resources. Allowing cross-country hiking and equestrian use in the remaining portion of the Wilderness provides for primitive and unconfined recreation, although visitors would naturally gravitate toward the most popular destinations, and these areas may become crowded and solitude lost.

Although most of the Wilderness would be open to cross-country hiking and equestrian use, designating and constructing specific trials for resource protection could minimize impacts to naturalness where users might otherwise develop social trails. These may result in a short-term reduction in wilderness characteristics while the trails were being constructed. Solitude could be decreased with trail construction as increased numbers of people visited the Wilderness using the trail system.

Allowing camping within the Wilderness, outside the Petroglyph Management Area and the Hidden Valley Area, could result in minor to moderate decreases in naturalness over the short and long term from disturbance and litter; however, requiring that campfires be contained to user-provided fire pans or fire blankets and requiring that no natural fuels be used and all fire waste products be packed out would minimize camping impacts. Theses constraints would place an increased logistical burden on users.

Allowing bouldering and rock climbing in the Wilderness, outside of the Petroglyph Management Area and sensitive resource areas, could cause moderate increases in impacts to naturalness by increasing social trails that would approach climbing areas and increasing associated devegetation and soil compaction near the base of climbing routes.

Prohibiting dogs within the Wilderness would provide strong resource protection although it could limit recreational opportunities for dog owners.

Prohibiting geocaching would increase naturalness by eliminating impacts from new, unwanted trails; litter and trash; devegetation; soil compaction; erosion; and wildlife disturbance from increased visitation near and leading to geocache locations.

Issuing SRPs for guiding and outfitting activities within the Wilderness could increase opportunities for primitive and unconfined recreation but could decrease naturalness and opportunities for solitude by increasing the total amount of visitation. SRPs would require permitee to operate in a manner that

provides wilderness protection, including maintaining existing naturalness, solitude, and opportunities for primitive and unconfined recreation. Allowing vending and competitive-use SRPs in the remainder of the NCA would not affect the Wilderness. Requiring organized groups to obtain SRPs on a case-by-case basis could have minor opportunity impacts by increasing the steps necessary for a group to participate in wilderness recreation, which could displace some users or user groups. Naturalness and solitude for other Wilderness visitors could be improved by directing large-group recreation to an area appropriate for that use.

4.4.2 To Wilderness from the North McCullough Wilderness

The Wilderness Management Plan, Appendix C, could help ensure that management activities considered and protected wilderness characteristics, and it would help manage different use areas, the highly visited Petroglyph Management Area, and the remainder of the Wilderness.

Petroglyph Management Area

During high-use periods, required guided tours into the Petroglyph Management Area would decrease opportunities for primitive and unconfined recreation; however, allowing self-guided tours during low-use periods would minimize the impacts to opportunities for primitive and unconfined recreation. Naturalness would be maintained over the long term because of management controls within the Petroglyph Management Area.

Establishing a group limit of 20 people on guided tours to the Sloan Canyon Petroglyph Site would cause minor decreases in solitude to the people on the tour. Limiting the number of self-guided permits to 25 per hour at the Sloan Canyon Petroglyph Site could cause a minor to moderate decrease in levels of solitude. Although, given the nature of self-guided tours, it is not likely that all 25 people will be in the canyon a one time. Visitors to the Sloan Canyon Petroglyph Site will likely not be experienced wilderness users and may have lower expectations concerning solitude, naturalness, and opportunities for primitive and unconfined recreation.

Requiring organized groups of between 10 and 35 people to obtain a use authorization and be accompanied by a guide to the Sloan Canyon Petroglyph Site would help minimize the impacts to the naturalness of the Wilderness, but would decrease opportunities for primitive and unconfined recreation by increasing visitor contact with management and directed activity. Solitude would be decreased when organized groups visited the site because as many as 60 people (25 from self guided permits) could be in the area. Naturalness would be maintained by ensuring appropriate visitor use in and around sensitive cultural and natural resources.

Controlling access to the Petroglyph Management Area at the proposed visitor center, by issuing permits, and by using ongoing canyon patrols would moderately reduce opportunities for primitive and unconfined recreation by constraining how visitors could experience this portion of the Wilderness and increasing the frequency of visitor contact with NCA staff. Allowing patrols to issue permits to visitors accessing the canyon from other than the visitor center would maintain some opportunities for primitive and unconfined recreation. Requiring nonguided visitors to experience an interpretive presentation on appropriate visitor use and site etiquette would mean more management interaction but probably would add to the natural and cultural experience.

Limiting visitor use of the Petroglyph Management Area to the canyon bottom and designated trails (e.g., proposed Petroglyph Trail and Cowboy Trail) within the Petroglyph Management Area would maintain or increase naturalness in the area over the long term by minimizing social trails, enhance opportunities to view cultural resources, and increase visitor satisfaction. Constructing the Cowboy Trail to avoid the

rockfall area would help maintain naturalness within the canyon by avoiding placement of developments, maintaining primitive and unconfined recreation for those visitors climbing the rockfall.

Prohibiting rock climbing in the Petroglyph Management Area would eliminate future impacts to naturalness, such as social trails and scarred rock faces in the canyon.

Allowing limited signage within Sloan Canyon for resource protection or to control dispersed access would decrease naturalness within the canyon by adding permanent developments. However, naturalness might be enhanced by the signage because resource damage could be prevented. Signage within the canyon could increase information available to visitors, improving visitor knowledge of the area, reducing incidents of lost visitors, and minimizing inappropriate recreation use. Placing access signage in different areas of the canyon limiting access to guided or permitted use would decrease incidents of visitors visiting the canyon without a guide but also would decrease naturalness and visitors' sense of primitive, unconfined recreation.

Remainder of the Wilderness

Dispersing visitor use causing social trails would enhance primitive and unconfined recreation opportunities by controlling the total amount of trails. Blocking and restoring social trails not desired for adoption into the trail system would decrease opportunities for primitive and unconfined recreation. Adopting social trails into the Wilderness system could reduce impacts to natural and cultural resources in the highly desirable destinations.

Allowing minimal permanent developments for the purposes of resource protection and enhancement of wilderness values could decrease opportunities for primitive and unconfined recreation but could increase the quality of wilderness recreation by providing improved access, increased information, and enhanced resource protection.

Allowing primitive and dispersed camping in the Wilderness, outside the Petroglyph Management Area and the Hidden Valley Tail Area (Figure 2.6), would maintain opportunities for camping or other overnight uses in the majority of the Wilderness. Allowing campfires in the NCA—in fire pans or blankets, requiring the importation of all fuel, and requiring all fire waste products to be packed out—would minimize multiple fire rings, trash, and human-caused wildfire and increase visitors' sense of a primitive experience, although it would place a logistical burden on the user.

Allowing bouldering and rock climbing, without permanent anchors, in the Wilderness, outside of Petroglyph Management Area and sensitive resource areas, would provide recreational opportunities; however, it could result in conflict with other recreation activities, such as wildlife watching and hunting, if climbing took place in or around high-demand or sensitive resources.

Prohibiting dogs within the Wilderness would provide strong resource protection and maintain naturalness although it could limit visitation opportunities for dog owners.

Prohibiting geocaching would eliminate potential impacts from this recreational activity and maintain Wilderness characteristics.

Signage and Developments

Installing low-profile, natural-color trailhead signs outside of the Wilderness displaying route information, maps, and visitor information would increase naturalness and opportunities for primitive and

unconfined recreation by improving visitor knowledge of wilderness characteristics and increasing user compliance with rules and regulations.

Allowing minimal developments for resource protection and enhancement of wilderness characteristics could maintain levels of naturalness, solitude, and opportunities for primitive and unconfined recreation by mitigating or preventing damage resulting from wilderness use.

Disturbance

Rehabilitating existing vandalized and disturbed areas within the Wilderness, such as two-track roads, to natural conditions within 4 years of issuance of the Resource Management Plan (RMP) Record of Decision (ROD) would increase the character of the Wilderness. Approximately 3.75 miles of two-track vehicle routes and 0.05 acres of disturbance associated with a rock dam and dug well would be rehabilitated. The rehabilitation activities could produce minor to moderate short-term impacts to the visitor experience by decreasing solitude because of the presence of the work crews and naturalness from the activity intrusion.

Removing or repairing vandalism and illegal dumping in the Wilderness, using appropriate methodology, would increase naturalness and solitude by eliminating trash and vandalism, while causing minor management presence within the Wilderness.

Managing access to the North McCullough Slickrock Catchment #1 in accordance with the Memo of Understanding with the Nevada Department of Wildlife (NDOW) would maintain or enhance wilderness characteristics over the long term by increasing naturalness and solitude by limiting amounts of disturbance associated with vehicle travel and minimizing human presence for maintenance activities.

4.4.3 To Wilderness from Cultural Resources

Managing cultural resources sites for scientific or traditional use (see Section 2.4.4) could cause minor decreases in short-term naturalness, solitude, and primitive and unconfined recreation during activities such as excavation and cultural ceremonies. Managing cultural resources within the Petroglyph Management Area or other sites for conservation use would maintain existing naturalness, solitude, and opportunities for primitive and unconfined recreation at these sites. Managing cultural resources within the Petroglyph Management Area or other sites for public use could decrease naturalness, solitude, and opportunities for primitive and unconfined recreation by increasing the amount of human presence, disturbance at or near these sites.

4.4.4 To Wilderness from Visual Resources

Managing the Wilderness as VRM Class I as described in section 2.4.6, would maintain naturalness over the long term by maintaining the scenic quality of the Wilderness.

4.4.5 To Wilderness from Interpretation

Development of a Comprehensive Interpretive Program for the NCA could affect wilderness characteristics by the installation of temporary or permanent interpretive media. If this media is within the Wilderness, it would decrease naturalness; however, interpretive media located outside the Wilderness but focused on wilderness characteristics could provide long-term benefits by improving visitor knowledge of wilderness and wilderness activities.

Allowing the use of low-profile, visually unobtrusive interpretive media, in areas of high use, for the purposes of resource protection or enhancement of Wilderness values would maintain or have minor impacts naturalness by adding developments within the Wilderness. Opportunities for primitive and unconfined recreation and solitude would be maintained or enhanced by providing information that is critical to wilderness experiences.

4.4.6 To Wilderness from Vegetation Management

Conducting rehabilitation of disturbed areas within four years of the RMP ROD could increase long-term naturalness by restoring natural vegetation conditions but also could decrease it in the short term by allowing the use of mechanized or motorized tools if determined appropriate.

Allowing rehabilitation of disturbed areas through natural processes could increase naturalness over the long term and would maintain solitude and naturalness in the short term by minimizing the amount of management activity within the Wilderness. However, minor decreases in naturalness could result from the spread of invasive species such as red brome.

Prohibiting collection of vegetation within the Wilderness would maintain existing levels of naturalness.

4.4.7 To Wilderness from Wildlife Management

Allowing construction and maintenance of wildlife waters within the Wilderness according to the memorandum of understanding (MOU) with the Nevada Department of Wildlife (NDOW) (BLM 2003c), could cause minor to moderate decreases in naturalness, solitude, and primitive and unconfined recreation during maintenance and construction operations. This impact would occur over the long term because of the presence of permanent developments.

Allowing temporary animal damage control activities would cause moderate short-term decreases in naturalness, solitude, and opportunities for primitive and unconfined recreation by increasing the numbers of people within the Wilderness and possibly increasing temporary developments within the Wilderness. Repairing resource damage caused by wildlife could result in minor long-term increases in naturalness by reestablishing native species or reducing non-native species.

4.4.8 To Wilderness from Livestock Grazing

Prohibiting supplements (e.g., salt licks) and range improvements in the Wilderness would maintain existing levels of naturalness, solitude, and existing opportunities for primitive and unconfined recreation.

4.5 Impacts To Cultural Resources

Impacts to cultural resource sites from authorized uses would be mitigated through identification and evaluation of the resources under the Nevada Protocol and through project avoidance, redesign, and, if necessary, data recovery. As use of the NCA increases, authorized and unauthorized uses of cultural resources are expected to increase. Human activity poses the greatest threat to cultural resources in the Sloan Canyon Petroglyph Site, through vandalism or inadvertent damage. Increased management of human activity in areas with a high concentration of cultural resources is designed to reduce the potential for impacts to cultural resources.

4.5.1 To Cultural Resources from Management Emphasis Areas

Approximately 67 percent of the NCA would be managed for primitive and nonmotorized recreation, and an estimated 82 prehistoric sites would be present in the affected area.

4.5.2 To Cultural Resources from Recreation

Restricting hiking to designated trails, once they are designated and constructed, could direct use away from culturally sensitive areas on approximately 27 percent of the NCA. Cross-country hiking impacts would be eliminated in the Petroglyph Management Area, and access to this area would be on two proposed trails from the north and the Hidden Valley trail from the south. Allowing cross-country hiking through the remainder of the NCA would increase incidental damage to cultural resources. Hikers could be drawn to interesting but culturally sensitive features in this area, increasing resource damage. Adding to the trail system would require standard inventories and clearances and cultural resources would be a factor in final trail design.

Focusing equestrian use on designated trails could direct such use away from culturally sensitive areas. Allowing cross-country equestrian use through 60 percent of the NCA could increase incidental damage to cultural resources. Restricting mountain bike use to designated routes on 6,969 acres (approximately 15 percent) of the NCA would eliminate impacts from bike use for sites located away from designated routes. Sites adjacent to designated routes could be impacted by erosion from water diverted by the route, as well as from route widening and braiding. Sites on the remaining portion of the NCA would not be impacted by mountain bike use.

Evaluation and consideration of incorporating unauthorized constructed and social trails into the trail system, and blocking and restoring that were environmentally unacceptable, would decrease incidental damage, vandalism, or theft on cultural sites impacted by the existence of social trails. It also would decrease the number of new social trails, which could decrease the impact on other sites. However, dispersing social trail use to other areas could increase minor impacts to cultural resource sites by dispersing use from an impacted area to nonimpacted areas.

Requiring organized groups obtain SRPs on a case-by-case basis would allow for user education before visits, which could result in a minor reduction of incidental damage outside the Petroglyph Management Area. This impact also would apply to vending and competitive-use SRPs.

4.5.3 To Cultural Resources from the North McCullough Wilderness

Petroglyph Management Area

Requiring guided use of the Petroglyph Management Area during periods of high use would decrease incidental damage and vandalism to cultural resources. During periods of low use, self-guided tours would maintain or slightly decrease moderate impacts from incidental damage and vandalism. Requiring nonguided canyon visitors to acquire permits and to experience interpretive presentations on appropriate use and etiquette would decrease minor impacts from incidental damage and vandalism.

Restricting access in the Petroglyph Management Area to no more than one guided group at a time would decrease impacts to the cultural resources in this area. Requiring guided use of the canyon for groups of 10 to 35 people, regardless of time, would decrease potential impacts associated with larger groups.

Managerial presence—specifically in the form of ongoing canyon patrols, access control, and signage at trailheads—would decrease incidental damage, vandalism, and theft in periods of high and low use. Limiting canyon use to the hours the visitor's center would be open would further decrease impacts to cultural resource sites because of increased monitoring and surveillance.

Limiting recreation use of the Petroglyph Management Area to the canyon bottom and a few designated trails would have long-term benefit to cultural resources located on the canyon sides by reducing erosion from social trails and inadvertent damage. Constructing a few trails also would decrease the need for and impacts from social trails. The severity of impact of direct trail effects such as data recovery efforts, accidental damage, and disturbance would depend on implementation of trail placement. Designing, constructing, and maintaining trails (at the north and south entrances of the Petroglyph Management Area) would allow for preservation of cultural resource sites by focusing intensive recreation use in areas where such use would not affect cultural resource sites.

Dispersing social trail use to other areas could increase minor impacts to cultural resource sites by dispersing use from an impacted area to nonimpacted areas. Dispersal could increase incidental damage and vandalism to cultural resource sites. Blocking and restoring social trails would decrease incidental damage, vandalism, or theft on cultural sites impacted by the existence of the social trails. It also would decrease the number of new social trails, which could decrease the impact on other sites.

Allowing minimal developments for resource protection could help protect cultural resources and decrease damage impacts. Installing signs would increase the effectiveness of restoration actions, increasing the preservation of affected sites. Removing and repairing evidence of vandalism in the Petroglyph Management Area and the Wilderness would remove social cues that could encourage other visitors to behave similarly.

4.5.4 To Cultural Resources from Cultural Resources

Establishing and implementing a monitoring program could be used to establish a cultural resources baseline and provide information for management decisions if unacceptable changes were to occur. The monitoring program would allow for early detection and treatment of sites affected by inadvertent damage, vandalism, or natural deterioration, increasing preservation of cultural resource sites.

Assigning half of the cultural resource sites to conservation for future use and traditional use would protect these sites and the information they contained while allowing for traditional uses. Although long-term research opportunities may be limited on half of the sites, managing the remainder of the sites for scientific uses, among others, could increase scientific knowledge of these sites. However, more sites would be preserved through data recovery rather than preserved in place.

Managing half of the sites, excluding rock art sites, for scientific, public, and traditional uses would allow for scientific study of these resources, increasing scientific knowledge of these sites while allowing for traditional uses. Preparing some of these sites for public use would increase scientific knowledge. Half of the rock art sites would be conserved for scientific study to the exception of other uses.

Managing sites not eligible for the National Register of Historic Places, including simple isolated sites, for experimental and scientific use would result in basic data recovery or use of these simple sites. This management would provide minor research opportunities.

Petroglyph Management Area

Managing cultural resource sites in the Petroglyph Management Area for traditional, conservation, public, and scientific uses would ensure their preservation from disturbance, while allowing for traditional and scientific uses. Preparing the sites for public use would increase scientific knowledge of the area. Allowing scientific use with a restriction to scientific activities that would have no effect on a site's eligibility for the National Register of Historic Places would limit the range of recovery methods. Such use and restrictions would preserve these sites in place, although it could limit the amount and level of information that would be recoverable.

4.5.5 To Cultural Resources from Interpretation

Preparing and implementing an interpretative plan would have moderate, long-term benefits by increasing public appreciation of cultural resources values of the NCA and surrounding area. Developing the interpretive program in cooperation from tribes, interested agencies, and volunteer organizations would enhance interpretation opportunities and communication. Increased public appreciation could lead to better visitor stewardship behavior. Benefits associated with stewardship behavior would include increased protection of cultural sites, decreased inadvertent damage to or disturbance of cultural sites, decreased vandalism and looting, and preservation of the integrity of cultural resources.

Placing interpretive media, such as educational signs or printed materials, for easier visitor use would increase education and interpretation of NCA users concerning the presence of cultural resources and their vulnerability to damage and destruction through human or natural processes. Guided tours also would include a stewardship message, and interpretive information would be given to all permitees, including outfitters and guides. This approach would decrease minor incidental damage to cultural resource sites as mindfulness and stewardship would be imparted to visitors.

Developing interpretive materials in cooperation with interested tribes would provide opportunities to convey Native American perspectives regarding the NCA.

4.5.6 To Cultural Resources from Facilities

Constructing a visitor center near the NCA boundary at the north entrance to Sloan Canyon and a parking lot and associated features at the Hidden Valley Trailhead would require standard inventories (Section 106) that could identify additional cultural resource sites. More extensive staff and interpretive facilities would increase visitor contacts with BLM staff, thereby reducing incidental damage, vandalism, or theft.

The presence of the visitor center, with a central theme of the NCA's association with Native Americans, would provide unique educational opportunities for visitors. In addition, designing the center to accommodate Native American activities or uses would convey the importance of NCA resources to Native Americans.

Constructing parking areas and providing interpretive material at the Hidden Valley, Dutchman Pass, and Quo Vadis Trailheads could inform visitors about sensitive resources and reduce impacts to the resource. This strategy could allow visitors to receive interpretive and educational information, reducing user-related impacts to cultural resources. The parking areas would require standard inventories (Section 106) that could identify additional cultural resource sites.

4.5.7 To Cultural Resources from Transportation

Cultural resource sites adjacent to the Hidden Valley Road, Dutchman Pass Road, Quo Vadis Mine Road, and Rattlesnake Canyon Road could be impacted by erosion from water diverted by the route, as well as from route widening and maintenance activities. Increased use on these roads could result in minor damage or vandalism to cultural resource sites.

4.5.8 To Cultural Resources from Vegetation Management

Avoiding surface-disturbing activities within sensitive or Special Status Species habitat would preserve cultural resources in these areas in place. Restoring and improving the natural conditions of native plant communities would minimize erosion and incidental damage to cultural resources in disturbed areas.

4.5.9 To Cultural Resources from Wildlife Management

Permanently closing trails or areas, including restricting activities, to protect wildlife species also would preserve cultural resource sites in these areas. Limiting trail construction and facility and ROW placement in known bighorn sheep lambing areas, areas of known bighorn sheep movement, and known raptor nesting areas could preserve cultural resource sites in these areas from incidental damage, disturbance, or destruction related to such developments and use. Seasonally restricting trail construction and facility and ROW placement for wildlife management would not necessarily afford the same preservation because construction and use could occur.

4.5.10 To Cultural Resources from Wildland Fire Management

Surface disturbances related to suppression activities (e.g., fire line construction, hand-line construction) could have minor to moderate impact on cultural resources. These impacts would be unlikely, however, because of the limited opportunity for natural wildland fire in the NCA.

4.5.11 To Cultural Resources from Livestock Grazing

Implementing BLM's Mojave-Southern Great Basin Resource Advisory Council (RAC), Standards and Guidelines for Rangeland Health and Guidelines for Grazing Administration (BLM 1997) would contribute to improved range conditions and soil and vegetation stability, reducing new and continued impacts to cultural resources from erosion. Developing new range improvements could have minor, long-term impacts on cultural resource sites.

4.6 Impacts To Visual Resources

Impacts to visual resources are described in terms of impact to scenic quality—meaning alteration of the natural components of the landscape such as landform, vegetation, color, adjacent scenery, and relative scarcity of a given type of landscape. Impacts also are described in terms of viewer sensitivity, which is a qualitative assessment of public concern for scenic quality.

Most proposed developments, facilities, or other disturbances would be mitigated to meet the objectives of the VRM class where the activity would take place, and a complete contrast rating analysis would be completed before design of all proposed projects. Facilities or other uses existing at the time of designation that would cause impacts to visual resources within the NCA would be considered pre-

existing, nonconforming uses. Visual resource objectives would be considered for the City of Henderson road and trails ROWs called for in the Sloan Canyon NCA Act.

4.6.1 To Visual Resources from Recreation

Restricting hiking use to designated trails, once designated and constructed and could cause minor decreases in scenic quality where trails were constructed within the 13,129 acres of the NCA where hiking would be limited to trails. However, limiting hiking to constructed trails could decrease or eliminate development of social trails, which would maintain scenic quality. Viewer sensitivity to constructed trails would likely be less than sensitivity to social trails.

About 41,852 acres of this area would fall within VRM Classes I and II. Allowing equestrian use on designated trails and areas open to cross-country equestrian use could decrease scenic quality from constructing trails on 6,309 acres of the NCA, about 2,000 acres of which would fall within VRM Classes I and II. However, limiting equestrian use to constructed trails could decrease or eliminate development of social trails, which would maintain scenic quality.

Allowing mountain biking only on designated trails could cause short- and long-term decreases in scenic quality on 6,969 acres of the NCA, about 2,000 acres of which would fall within VRM Class II. However, limiting equestrian use to constructed trails could decrease or eliminate development of social trails, which would maintain scenic quality.

Constructing additional trails on an as-needed basis could adversely impact the visual quality of the area; however, where existing social trails have had even more of a negative impact they could be used, in addition to restoration efforts to help remedy the greater impact.

Closing the NCA to all OHV use would maintain or increase scenic quality in the NCA by reducing use and disturbance of currently used OHV areas and routes. Viewer sensitivity to OHV-related disturbances would be reduced over time as routes and areas were manually or naturally rehabilitated.

4.6.2 To Visual Resources from the North McCullough Wilderness

Restoring existing vandalized and disturbed areas within the Wilderness, such as two-track vehicle routes, to natural conditions within 4 years of issuance of the RMP ROD would be a beneficial impact to the Wilderness. Approximately 3.75 miles of two-track vehicle routes and 0.05 acres of disturbance associated with a rock dam and dug well would be rehabilitated. Nonetheless, the restoration activities themselves could produce minor to moderate short-term impacts to the visual resources because of the presence of the work crews and naturalness from the activity intrusion.

Petroglyph Management Area

Locating limited amounts of signage within Sloan Canyon or placing access signage within the canyon could cause minor decreases in scenic quality within Sloan Canyon. Viewer sensitivity to signage would be moderately increased by the confined canyon setting.

Constructing a trail routed to avoid the rockfall area would maintain scenic quality in and around Sloan Canyon by avoiding the need for permanent developments, such as a ladder, at the rockfall and routing the majority of canyon visitors through an adjacent wash that would not require substantial constructed features.

Restoring soils and vegetation could increase the potential for minor short-term decreases in the scenic quality of the wilderness landscape and minor increases in viewer sensitivity during restoration projects. However, restoration would increase the scenic quality of the Wilderness landscape over the long term. Closure of social trails, using natural materials, and restoration of visible portions using natural materials would increase the scenic quality of the NCA and decrease viewer sensitivity to social trail disturbances.

4.6.3 To Visual Resources from Cultural Resources

Assigning the Sloan Canyon Petroglyph Site or other prehistoric and historic sites to the public use category could cause minor decreases in scenic quality within and surrounding the sites by accommodating the increased visitation (e.g., trails).

4.6.4 To Visual Resources from Visual Resources

Designing features of signage, structures, or facilities to meet VRM objectives could maintain or increase the scenic quality of the existing landscape and maintain or decrease visitor sensitivity to changes.

Designating the North McCullough Wilderness as VRM Class I would preserve the existing character of the landscape on 14,765 acres (approximately 30 percent) of the NCA. Designating 27,089 acres of the NCA (approximately 56 percent) as VRM Class II would maintain or increase scenic quality by limiting certain types of development within this portion of the NCA. Designating a 6,596-acre portion of the NCA (approximately 14 percent) as VRM Class III would partially retain the existing character of the landscape in these areas and could accommodate existing disturbances, including facilities described in the proposed plan. No VRM Class IV would be designated, eliminating the potential for major changes to scenic quality or viewer sensitivity in the NCA.

4.6.5 To Visual Resources from Interpretation

Installing low-profile interpretive signage in areas of high use could decrease scenic quality and increase viewer sensitivity to the signs. Installing highly visible media in staging areas could cause minor to moderate decreases in scenic quality and increases in viewer sensitivity. Installing low-profile, visually unobtrusive interpretive media in the Wilderness could cause minor to moderate decreases in scenic quality and moderate increases in viewer sensitivity to signage.

4.6.6 To Visual Resources from Facilities

The design of visitor facilities would comply with visual resource class objectives for the area where the facility would be located. For example, the visitor center would cause moderate to major long-term increases in viewer sensitivity by adding a large facility in a previously undisturbed area. Construction of a visitor center would cause moderate to major short-term decreases in scenic quality near the NCA boundary at the north entrance to Sloan Canyon.

Construction of parking lots, kiosks, and vault toilets at the Hidden Valley Trailhead and Quo Vadis Trailhead and similar facilities plus an equestrian staging area at the Dutchman Pass Trailhead would cause moderate long-term decreases in scenic quality in these areas by adding facilities in primarily natural areas. The facilities would cause only minor increases in viewer sensitivity at the Dutchman Pass Trailhead, because of adjacent development, but would cause moderate increases in viewer sensitivity at the Hidden Valley Trailhead and Quo Vadis Trailhead because of the undeveloped nature of these areas.

4.6.7 To Visual Resources from Lands and Realty

Renewing ROWs for communication facilities would maintain current scenic quality and viewer sensitivity over the long term. Renewing ROW grants with expiration dates would maintain existing scenic quality and viewer sensitivity to facilities. Allowing amendments to existing ROWs that would meet the intent of the Sloan Canyon NCA Act could increase the scenic quality of the NCA and decrease viewer sensitivity resulting from the addition of facilities.

Any new or amended ROWs would have to benefit the NCA, so construction of visible new ROW facilities or construction of facilities in new ROWs would be required to maintain or decrease existing levels of visual contrast. This would lead to maintained or increased levels of scenic quality and decreased viewer sensitivity to ROW facilities. Prohibiting new communication sites would maintain existing scenic quality and viewer sensitivity to ROWs.

4.6.8 To Visual Resources from Vegetation Management

Conducting rehabilitation in disturbed portions of primitive and nonmotorized MEAs would increase scenic quality over the long-term; however, it could cause moderate short-term decreases in scenic quality and increases in viewer sensitivity in project areas.

4.6.9 To Visual Resources from Wildlife Management

Allowing construction and maintenance of wildlife water developments in the NCA or the Wilderness could have minor, long-term impacts to scenic quality and viewer sensitivity by creating increased visual contrasts where water developments were constructed.

4.6.10 To Visual Resources from Wildland Fire Management

Fire suppression efforts could cause minor decreases in scenic quality if these efforts involved surface disturbance.

4.6.11 To Visual Resources from Livestock Grazing

Continuing to allow grazing in the NCA and the Wilderness could cause minor decreases in scenic quality if grazing caused alterations in the vegetation composition.

4.7 Impacts To Interpretation

The Sloan Canyon NCA Act identifies one of the NCA's purposes as enhancing the area's educational resources for the enjoyment of present and future generations. Interpretation of the NCA increases visitors' emotional and cognitive connections to resources and visitors' respect and appreciation for the NCA's resources and improves visitor experiences. Interpretation can occur both on and off site through a wide variety of media. Although there currently is no onsite interpretation in the NCA, opportunities exist; this section analyzes the impacts of RMP decisions on these opportunities.

4.7.1 To Interpretation from Recreation

Requiring users (hikers, equestrians, bikers) to stay on designated trails in some areas would retain the trailheads and trails as onsite interpretive opportunities. Onsite interpretive opportunities would increase for equestrians and mountain bikers.

Designing and constructing a trail system to accommodate multiple trail uses would increase interpretive opportunities for multiple user groups who used similar trailheads and trails. This trail system also could provide interpretive and educational opportunities for user groups with different habits and goals. Including moderate levels of development in and near trails and associated facilities could provide opportunities for interpretive media that would be conducive to resources such as loop trails or focal points for an array of recreational destinations. Adding trails would increase interpretive opportunities.

4.7.2 To Interpretation from the North McCullough Wilderness

Installing trailhead access signage outside the Wilderness would increase interpretive visitor interface, providing opportunities for interpretation of wilderness values. Although these opportunities would not side the Wilderness, a trailhead provides the opportunity to set the stage for an interpretive experience.

Petroglyph Management Area

Allowing visitor use of the Petroglyph Management Area through both guided and self-guided tours, depending on visitation rates, would allow users to choose the type of interpretive opportunity they desired (formal interpretive programs or self-guided tours). Requiring interpretive presentations for nonguided visitors from the north entrance to the Petroglyph Management Area would provide formal interpretive opportunities for self-guided users before entering the canyon. At other areas, nonguided visitors would experience an informal briefing while obtaining a use permit. In addition, using a BLM-guide interpretive interface during periods of high use would decrease message interference compared with not using guides during busy periods. Allowing organized groups to use the Petroglyph Management Area only when accompanied by a guide would provide for formal interpretive opportunities. A group size to 10 to 35 people could slightly decrease the effectiveness of interpretive communication.

Limiting the number of self-guided tour permits would decrease the number of individuals in the Petroglyph Management Area, which would decrease interpretive interference and increase the effectiveness of interpretation for Petroglyph Management Area users. Locating limited signage in the canyon could cause a minor increase in communication of the interpretive message. Limiting visitor use to the canyon bottom and a small set of designated trails would expand interpretive opportunities as all visitors would remain in a relatively close group. The designated trails could allow closer a relationship between visitors and resources that could enhance communication of the interpretive message.

Requiring ongoing patrols of the Petroglyph Management Area by rangers or other staff during visitor use hours would provide opportunities for informal interpretation. Informal interpretation, or interpretation that was not planned, would have one-on-one benefits similar to those of formal interpretation and could be tailored to varying resources and conditions.

4.7.3 To Interpretation from Cultural Resources

Allowing public use of cultural sites in the Petroglyph Management Area would provide interpretive opportunities. Maintaining the site in its natural condition would not impede the ability to deliver the

interpretive message. Assigning cultural use sites for public use could provide for increased interpretive opportunities. Not assigning rock art outside the Sloan Canyon Petroglyph Site to public use could result in a minor decrease in interpretive opportunities because the only area available for interpretation would be in the Petroglyph Management Area.

4.7.4 To Interpretation from Interpretation

Developing and implementing a Comprehensive Interpretive Program, which includes the preparation of the Interpretive Strategy and Environmental Education Strategy (Appendix E), would result in a major impact to interpretation by providing an integrated, thorough interpretive program. This program would decrease the potential for contradictions in communication materials or approaches. Encouraging partnerships with other organizations could improve both through development and delivery of interpretive messages.

Allowing use of low-profile, visually unobtrusive interpretive media would increase opportunities for interpretation, allowing for communication of interpretive messages. Limiting stationary interpretive media to specific areas identified for interpretation would focus intensive interpretive opportunities in areas best suited to deliver the interpretive message. Providing a full range of interpretive media would result in a moderate increase in the ability to deliver interpretive messages.

4.7.5 To Interpretation from Facilities

Constructing a visitor center near the NCA boundary at the north entrance to Sloan Canyon would result in a major increase in interpretive opportunities. Including an interpretive use area, outdoor amphitheater, and classrooms would provide a spectrum of areas where interpretive interference could be eliminated and successful interpretive communication could be maximized through formal and informal interpretation, including through other media. Construction and maintenance of a visitor center could cause moderate decreases in opportunities for offsite interpretation by shifting the emphasis to the visitor center.

Impacts at the Hidden Valley Trailhead and Dutchman Pass Trailhead would include interpretive opportunities in staging areas and trailheads would increase. Constructing a parking lot with an interpretive kiosk at the Quo Vadis Trailhead would increase interpretive opportunities in that area. Parking lots could be used as staging areas and trailheads.

Providing information throughout the City of Henderson could result in a minor increase in offsite interpretive opportunities about the NCA's resources.

4.7.6 To Interpretation from Transportation

Allowing registered vehicles to use existing roads (Dutchman Pass Road, Quo Vadis Mine Road, and Rattlesnake Canyon Road) would result in a major impact to interpretation. Each road would provide opportunities for various types of interpretation. Closure of other roads would produce a minor impact, depending on the resources being interpreted.

4.8 Impacts To Facilities

Currently there are no existing facilities at the Sloan Canyon NCA. This section analyzes impacts to future facility development from the different management decisions.

4.8.1 To Facilities from Recreation

Designing an extensive trail system could cause moderate to major increases in the need for, use of, and maintenance of associated visitor facilities and parking areas as visitor use increased over the long term. Limiting hiking use to designated trails (13,129 acres) could cause moderate to major increases in the need for, use of, and maintenance of the visitor center, Hidden Valley Trailhead, Dutchman Pass Trailhead, and Quo Vadis Trailhead facilities as visitor use increased over the long term.

Designating horse trails and areas open to cross-country equestrian use (34,855 acres) could cause moderate to major increases in the need for, use of, and maintenance of the Hidden Valley Trailhead, Dutchman Pass Trailhead, and Quo Vadis Trailhead facilities over the long term. Additional design elements, such as horse trailer parking and horse tie-up areas, could be needed at these locations.

Restricting mountain biking to designated areas (6,969 acres) could cause moderate to major increases in the need for, use of, and maintenance of the Dutchman Pass Trailhead, Quo Vadis Trailhead, and Hidden Valley Trailhead over the long term. Additional design elements, such as bike racks, could be needed at those locations.

4.8.2 To Facilities from the North McCullough Wilderness

Requiring the use of designating hiking trails in approximately 2 percent of the Wilderness for resource protection could cause moderate to major increases in design, use, and maintenance of facilities. Designating the wash in the canyon bottom from the visitor center at the north entrance of Petroglyph Management Area would increase the need for, use of, and maintenance of the visitor center. Additional design elements—such as comfort stations, parking, interpretive exhibits, and service offerings—for directed visitation could be required. Constructing a trail from the Hidden Valley Trailhead to the Petroglyph Management Area would increase the need for, use of, and maintenance of the Hidden Valley Trailhead. Additional design elements and services, such as comfort stations and adequate parking areas, could be required. Installing trailhead access signage and visitor information would cause moderate increases in the design, use, and maintenance of facilities near access points for entering the Wilderness. In areas lacking facilities, moderate to major increases in the amount of visitor-created parking areas could occur over the long term as visitor use increases.

Petroglyph Management Area

Designating the Petroglyph Trail and the Cowboy Trail as the north access to the Sloan Canyon would cause major increases in the need for, use of, and maintenance of the visitor center. Because a large percentage of visitation to the NCA is expected to occur in the Petroglyph Management Area, directed visitation to the north entrance and use of that entrance as the access control point would place higher demands on facility maintenance and repairs. Additional design elements—such as comfort stations, parking, interpretive exhibits, and service offerings—for directed visitation would be needed.

Construction of a trail from the Hidden Valley Trailhead to the Petroglyph Management Area could cause major increases in the need for, use of, and maintenance of the Hidden Valley Trailhead over the long term. Directed visitation would place higher demands on facility maintenance and repairs. Additional design elements—such as comfort stations, parking, and interpretive material—for directed visitation could be needed. Requiring all nonguided canyon visitors at the north entrance to Sloan Canyon to view an interpretative presentation could create a need for appropriate design elements at the visitor center.

4.8.3 To Facilities from Cultural Resources

Cultural resources surveys that would comply with Section 106 of the NHPA would be completed as part of the facility design. Depending on the results, the survey could have minor impacts on the design and construction of facilities.

4.8.4 To Facilities from Facilities

Developing a large visitor center as the main entrance to the Petroglyph Management Area with substantial interpretive, educational, and administrative elements would have a major impact on design requirements such as building sizes and uses. Infrastructure needs such as water and power could require advanced coordination with the City of Henderson, although the utility needs of the NCA would have minor impacts to the overall urban system.

Providing visitor facilities and reclaiming existing visitor-created parking areas would direct visitation to desired areas and could reduce the amount of dispersed parking. Resources such as cultural sites, plant habitat, soils, and hydrology patterns located within or near the location for the Hidden Valley Trailhead and Dutchman Pass Trailhead could restrict flexibility with regard to facility size and placement. The Dutchman Pass Trailhead, within Clark County's air quality nonattainment area, might need to be constructed to reduce fugitive dust.

Resources such as cultural sites, plant habitat, tortoise habitat, soils, and hydrology patterns located within or near the location for the Quo Vadis Trailhead could restrict flexibility with regard to facility size and placement.

4.8.5 To Facilities from Transportation

Restricting public access to the Hidden Valley Road, Dutchman Pass Road, Quo Vadis Mine Road, and Rattlesnake Canyon Road would reduce the amount of visitor-created parking areas throughout the NCA. Improved road conditions would increase access and associated use of unimproved areas and planned facilities.

4.8.6 To Facilities from Wildlife Management

Seasonal small-area closures to protect wildlife during critical life periods could delay new construction, increase restrictions, and temporarily hinder access to facilities. Permanent closures to protect wildlife could affect placement of new facilities. Establishing avoidance areas near Special Status Species habitats could restrict placement of new facilities or access roads.

4.8.7 To Facilities from Wildland Fire Management

Although the possibility for fire is low, using appropriate management responses protects aboveground facilities from fire-related damage and reduces the need for associated repair and replacement costs.

4.9 Impacts To Lands And Realty

There are approximately 44 ROWs within the NCA on file in the Las Vegas Field Office. ROWs within the NCA are primarily used for power lines, flood control facilities, access roads, and communications.

Existing ROWs are mainly confined to the northern and eastern portions of the NCA. Valid existing rights are protected under the Sloan Canyon NCA Act. Issuance of new ROWs, permits, and leases may continue within the NCA under the Act, outside the Wilderness, if they benefited the purposes of the NCA.

4.9.1 To Lands and Realty from Visual Resources

Removing the VRM Class IV category and converting the area to VRM Class III (6,596 acres) would impose minor additional design stipulations and siting requirements on ROWs, which could increase construction and maintenance costs. Removing the VRM Class IV category and converting more VRM Class III area to Class II (28,117 acres) would impose moderate design and siting requirements on ROWs, which could increase construction and maintenance costs and make such projects economically infeasible (Figure 2.9). There could be a moderate to major increase in new ROW requests denied as a result of the VRM Class II area.

4.9.2 To Lands and Realty from Lands and Realty

Considering new and amended ROWs on case-by-case basis according to criteria that would benefit the NCA probably would limit additional ROW authorization. Establishing evaluation criteria for new ROWs could decrease the time of processing and clarify standards for ROW applicants.

Limiting film permits to designated trails and trailheads would retain the ability to accommodate filming under greater limitations. However, placing maximums of 15 people per permit would exclude the potential for larger film projects to occur.

4.9.3 To Lands and Realty from Transportation

Restricting registered vehicles to the Dutchman Pass Road, Quo Vadis Mine Road, and Rattlesnake Canyon Road could increase conflicts between ROW maintenance and other users and increase damage or vandalism on adjacent ROWs as visitation increases over the long term.

4.9.4 To Lands and Realty from Vegetation Management

Requiring new or amended ROW holders to improve or restore the natural condition of local native species populations from long-term disturbance could increase installation costs. Evaluating sites for the presence of special status plants before disturbance could affect desired placement of new facilities or access roads, which may increase costs associated with ROW actions.

4.9.5 To Lands and Realty from Wildlife Management

Impacts from establishing a 0.25-mile radius avoidance area to protect artificial and natural waters could have minor restrictions on placement of new ROWs and could restrict access and maintenance activities on new ROWs.

Limiting ROW construction in known bighorn sheep lambing areas could restrict placement of new facilities and access roads (12,860 acres). Limiting surface disturbance in known lambing areas from January through May could delay new facility construction and maintenance activity on ROWs during that time period. Establishing avoidance areas in known nesting areas could restrict placement of

facilities (2,062 acres). Avoiding disturbance in areas of potential Special Status Species habitat, including desert tortoise, could restrict placement, access, and maintenance of facilities.

Seasonally restricting ROW construction within a radius surrounding occupied raptor nesting sites could delay facility construction and maintenance activity on ROWs. Restriction areas would be determined on a case-by-case basis and depend on factors such as species and nesting location. Seasonal small-area closures to protect wildlife during critical life periods could delay ROW construction and hinder access to new sites.

4.9.6 To Lands and Realty from Wildland Fire Management

Although the possibility for fire is low in the NCA, using appropriate management responses protects aboveground facilities from fire-related damage and reduces the need for associated repair or replacement costs.

4.10 Impacts To Transportation (Registered Motorized Vehicles)

4.10.1 To Transportation from Recreation

The completion of the North McCullough and Anthem Trails would attract visitors to the North McCullough Road, when it was constructed, and would have long-term impacts on the numbers of vehicles traveling the road. The use of this road could also increase if additional trails and trailheads were constructed in the future.

Designating mountain bike and equestrian trail areas near the Quo Vadis trailhead could increase traffic on the designated roads.

4.10.2 To Transportation from Facilities

Constructing trailheads and staging areas at Dutchman's Pass and Quo Vadis Mine would increase usage of the Dutchman Pass Road, the Quo Vadis Mine Road, and Rattlesnake Canyon Road. Currently, these roads are infrequently used, but as NCA visitation increased, moderate impacts could occur due to user conflicts and road degradation.

4.10.3 To Transportation from Transportation

Designating the Dutchman Pass Road, the Quo Vadis Mine Road, and Rattlesnake Canyon Road as open for registered motorized vehicle travel would allow access to interior portions of the NCA. However, designating only these roads would likely have major impacts for road maintenance requirements and to structures and traffic control. In addition, conflicts between vehicles and hikers, bikers and other types of recreational users may increase.

The City of Henderson's North McCullough Road, when constructed, would be open for public travel and would likely be heavily used to access the interior of the northern portion of the NCA.

4.11 Impacts To Vegetation Management

Impacts to vegetation, including Special Status Species and their habitats, are described in terms of an increase or decrease in disturbance (i.e., soil compaction, accelerated soil erosion, damage to biological soil crusts, removal of vegetation). This impact is a result of surface-disturbing or other disruptive activities (e.g., vehicle contact, construction of trails, road improvements, and utility corridors). Associated impacts on the potential for establishment or spread of invasive plant species and the condition of the vegetation resource, including special status plant species, also are discussed.

4.11.1 To Vegetation from Recreation

Allowing primitive and dispersed camping throughout the NCA, excluding the Petroglyph Management Area, could result in short-term impacts from removal or trampling of vegetation. Restrictions on camping could offset the degree of disturbance, however, and impacts probably would be minor.

Construction of trails within the NCA would result in loss of vegetation because of clearing. However, avoiding trail development in sensitive resource areas would minimize impacts on sensitive vegetation habitat (e.g., Special Status Species habitat, areas prone to erosion). Restoration of unauthorized constructed and social trails within the NCA would decrease the likelihood that these disturbed areas would become dominated by invasive plant species and would improve the condition of the vegetative resource in these areas by reducing fragmentation of the vegetation community and improving population viability over the long term.

Closing the NCA to OHV and restricting mountain bike use to designated trails would decrease disturbance of vegetation associated with these uses (i.e., soil compaction, accelerated soil erosion, damage to biological soil crusts, removal of vegetation), resulting in decreased establishment or spread of noxious or invasive weeds. This action also would indirectly maintain or improve the condition of vegetative resources through reduction of fragmentation of existing habitat and maintenance of existing plant structure and percent cover, especially of species that would be sensitive to trampling (i.e., white bursage). These impacts would be minor to moderate.

4.11.2 To Vegetation from the North McCullough Wilderness

Use of the minimum requirement and minimum tool analysis approach in response to wildfire could minimize disturbance of vegetation from wildfire response activities; however, if the minimum-tool approach proved to be inadequate for a particular wildfire, allowing the wildfire to grow larger, disturbance of vegetation would increase.

Developing permanent facilities within the North McCullough Wilderness would result in a potential localized loss of vegetation if a previously undisturbed site was chosen. Allowing only minimal permanent facilities would minimize this disturbance, however.

Restoration of human-caused disturbances and alterations (e.g., establishment of noxious or invasive weeds) within the Wilderness would decrease the likelihood that disturbed areas would become dominated by invasive plant species. Disturbance associated with restoration efforts would occur, however, if mechanized tools were used.

Allowing primitive and dispersed camping throughout the Wilderness, excluding the Petroglyph Management Area, could result in short-term impacts from removal or trampling of vegetation. Campfire fuel restrictions would reduce incidents of vegetation removal. Restrictions on camping could minimize

disturbance, however, and impacts probably would be minor. Furthermore, designation of hiking and equestrian trails for resource protection would minimize disturbance to vegetation associated with use of trails. Construction of trails from Hidden Valley to the Petroglyph Management Area would result in loss of or damage to vegetation. Dispersal of recreation use that could otherwise result in social trails to other areas (using area closures, barriers, and visitor information) also would minimize disturbance associated with social trail use.

4.11.3 To Vegetation from Facilities

Development of visitor facilities, including parking areas, would result in a permanent localized loss of vegetation at development sites if previously undisturbed sites were chosen. However, these impacts would be larger because of the greater amount of disturbed area. Landscaping of developed areas using only plant species native to the NCA would reduce the spread or establishment of noxious or invasive species in these disturbed areas by reducing the potential spread of non-native species that could out compete native species, preserving genetic diversity.

4.11.4 To Vegetation from Lands and Realty

If applications for ROWs were considered on a case-by-case basis and a reduction in disturbance was a consideration of approval, disturbance associated with new and amended ROWs would be minimized and probably would result in only minor impacts.

4.11.5 To Vegetation from Transportation

Authorization of motorized vehicles for installing, maintaining, and reconstructing water development projects could result in increased disturbance of vegetation from trampling and increased establishment or spread of noxious or invasive weeds.

4.11.6 To Vegetation from Vegetation Management

Any efforts to survey, monitor, and manage noxious or invasive plant species in the NCA would decrease establishment or spread of noxious or invasive weeds, which could indirectly increase habitat productivity, species diversity, and disease and pest resistance and result in long-term maintenance or improvement of the condition of vegetative resources (e.g., habitat productivity, species diversity, disease/pest resistance, percent cover). The degree of impact could be minor or major, depending on the level of eradication and prevention activities.

Promotion of native plant communities and restoration of disturbed areas in all MEAs would decrease the potential for the spread of noxious or invasive weeds, which would directly result in increases in habitat productivity, species diversity, and disease and pest resistance of vegetation. However, allowing disturbed areas in the North McCullough Wilderness to be restored through natural processes would increase the likelihood that disturbed areas would become dominated by invasive plant species. Landscaping of all developed areas within the NCA using only plant species that were native to the NCA would result in enhanced long-term maintenance of the condition of the vegetative resources of the NCA by limiting the opportunity for non-native species to be established within the NCA.

Improving or restoring to natural conditions any surface disturbance in all MEAs that exceeded the thresholds of disturbance adversely affecting native plant communities would decrease the likelihood that disturbed areas would become dominated by invasive plant species; fragmentation of the vegetation community also would be reduced over the long term. Setting the threshold of disturbance for

nonmotorized MEAs to include short-term impacts would further decrease the likelihood that these areas would become dominated by invasive species.

Prohibiting casual and commercial collection of vegetation in the NCA could maintain or improve vegetative condition by retaining mature plants and seeds and preserving population viability and genetic diversity. Because unlawful collections could still occur, however, the impacts related to the prohibition of casual and commercial collection probably would be minor and localized.

Restoration and rehabilitation of disturbed areas in the North McCullough Wilderness using a minimum requirement and minimum tool analysis approach would decrease the likelihood that disturbed areas would become dominated by invasive plant species.

Minimizing impacts to native plant communities in all MEAs adversely affected by surface disturbance would decrease the potential for the spread of noxious or invasive weeds, but to a more limited degree than direct improvement or restoration of these areas. Setting the threshold of disturbance for nonmotorized MEAs to include short-term impacts would further decrease the likelihood that these areas would become dominated by invasive species. Allowing some collection, particularly commercial collection, of vegetation within the NCA, outside the Wilderness, would have minimal impacts.

Avoiding Special Status Species when conducting surface-disturbing activities would maintain the condition of these species and their habitats. Conversely, surface disturbance would cause impacts to Special Status Species populations and habitat, particularly habitat degradation and reduction of habitat.

4.11.7 To Vegetation from Wildlife Management

Avoiding disturbance or development in habitats of Special Status Species and mitigation of disturbance discovered in these areas would indirectly improve the condition of the vegetation resource in those areas. The impacts on these species would be moderate to major.

4.11.8 To Vegetation from Livestock Grazing

Permitting livestock grazing in the Hidden Valley Allotment could result in minor localized increases in disturbance of vegetation (e.g., accelerated soil erosion, removal of vegetation, change in species composition) and establishment or spread of noxious or invasive weeds related to domestic animal use; however, the disturbance should be minimized by adherence to the *Mojave-Southern Great Basin RAC Rangeland Health Standards and Guidelines for Livestock Grazing Management* (BLM 1997), including allotment-specific objectives.

4.12 Impacts To Wildlife Management

The NCA encompasses an ecologically diverse region with a variety of land forms, soil types, and vegetation communities. This variability creates habitat for numerous wildlife species, including mammals, birds, and reptiles. No known fish, mollusks occur within the NCA. Management of wildlife includes not only general wildlife species and their habitat but species and habitat that are protected under the Endangered Species Act, species identified as Nevada BLM-sensitive species, or state species of concern.

The BLM would continue to manage wildlife habitat in coordination with NDOW, and it is assumed that sufficient habitat would exist to maintain NDOW wildlife population management objectives. It is assumed that designated hiking trails within the NCA would receive greater overall visitor use than cross-

country hiking areas because of their ease of use by a wider array of user types and their proximity to populated areas. It also is assumed that northern portions of the planning area would receive a greater amount of human use because of the close proximity of populated areas and available access.

4.12.1 To Wildlife from Recreation

Designating approximately 18,000 acres as semi-primitive nonmotorized MEA would result in increased preservation of wildlife habitat characteristics in the NCA because of avoidance of facility construction and prohibition of motorized use.

Limiting hiking to designated trails, once constructed, in areas bordering the northwestern portion of the NCA where there would be increased access and proximity to populated areas would reduce effects on wildlife by concentrating human presence, including the likelihood that wildlife could become habituated to humans in those areas. The level of disturbance would depend on the location of a designated trail relative to sensitive wildlife habitat and the amount of visitor use on designated trails. Facilities associated with the trail system might result in a slight increase in human disturbance to wildlife from concentrated human presence.

Limiting equestrian use to designated trails, once constructed, in the northern portion of the NCA where there would be increased access and proximity to populated areas would reduce effects on wildlife by concentrating human presence, including the likelihood that wildlife could become habituated to humans in these areas. The location of the designated area would be outside the majority of sensitive bighorn lambing and raptor nesting areas.

Limiting mountain biking to designated multiple-use trails and vehicle roads would result in a large reduction in effects on wildlife from vegetation trampling and human disturbance. Limiting primitive and dispersed camping to the southern portion of the NCA would result in a reduction of impacts of vegetation trampling and human disturbance. Limiting bouldering and traditional rock climbing (no permanent anchors) to areas outside sensitive resource areas in the NCA would result in a large reduction of human disturbance effects on wildlife, particularly in bighorn sheep lambing and raptor nesting areas. Prohibiting dogs in 75 percent of the NCA would provide strong resource protection but eliminate recreational opportunities for dog owners. Near the most populated areas (25 percent of the NCA), dogs could still come to the NCA, but only on a leash, and on trails, once trails were constructed and being used.

Closing the entire NCA to OHV use would result in long-term preservation of habitat characteristics and elimination of direct mortality of animals and indirect noise and disturbance from human presence associated with OHV use.

4.12.2 To Wildlife from Petroglyph Management Area

Limiting visitor use of the Petroglyph Management Area to the canyon bottom and a limited number of designated trails would reduce overall effects of human disturbance on wildlife. However, such action could still result in temporary indirect noise and disturbance to nesting raptors from increased visitor use. Construction also could result in introduction of noxious or invasive weeds that could result in modification of wildlife forage base.

4.12.3 To Wildlife from the North McCullough Wilderness

The BLM would manage access to the existing North McCullough Slickrock Catchment #1 (Maintenance Project #4916, also known as the Poppy big game guzzler) in accordance with the MOU with NDOW (BLM 2003c), which would continue to sustain viable wildlife populations in the Wilderness.

Allowing hiking and equestrian use throughout the Wilderness could result in temporary indirect disturbance on wildlife from dispersed human presence and may result in decreased reproductive fitness for bighorn sheep, alteration of raptor distribution and breeding, and alteration of wildlife habitat. The level of disturbance would depend on the amount of visitor use within the area and probably would be greater in the northern portions of the planning area because of increased access and proximity to populated areas.

Prohibiting dogs throughout the Wilderness would provide strong resource protection although it could limit recreational opportunities for dog owners.

4.12.4 To Wildlife from Cultural Resources

Managing cultural sites under Section 106 and appropriate guidance when these sites were threatened by land-disturbing activities could result in long-term protection of wildlife habitat characteristics because of the nature of preserving the location and integrity of cultural sites.

4.12.5 To Wildlife from Visual Resources

Designating the Wilderness as VRM Class I and 27,000 acres as VRM Class II would protect bighorn lambing areas and other wildlife habitat through a low level of change to the characteristic landscape.

4.12.6 To Wildlife from Facilities

Development of a management program that would strive to achieve a litter-free NCA would provide protection of sensitive wildlife populations, particularly desert tortoise, from introduction of new predators and non-native species that may be attracted to litter in the NCA. Because of the proximity of the NCA to the City of Henderson, an increased likelihood of illegal dumping and random litter deposition would exist. Ravens, coyotes, and feral dogs and cats tend to be attracted to readily available food sources that can be contained in litter depositions. These species would pose a threat to all wildlife populations within the NCA by preying on eggs and juveniles; they would be of particular concern, however, to the desert tortoise. The common raven has been the foremost predator of desert tortoise juveniles because of large increases in raven populations from increased food supplies near urban areas (e.g., roadkill, trash, and garbage dumps), including new sites for perches and nests (e.g., fences, buildings, power poles, and towers) (NPS 2004; Nature Conservancy and Nevada Field Office FWS 2002).

Construction of a visitor center near the NCA boundary at the north entrance to Sloan Canyon, a parking lot inside the NCA boundary at the Hidden Valley Trailhead, a parking lot and an equestrian staging area near the northeastern boundary of the NCA at the Dutchman Pass Trailhead, and an half-acre parking lot at the Quo Vadis Trailhead would result in minor permanent loss of sparse creosote and grassland habitat, which is common in the NCA. Increased human presence in these areas would result in minimal disturbance because of their location near the NCA boundary, outside the sensitive wildlife habitat.

4.12.7 To Wildlife from Lands and Realty

No authorization of new communication sites would eliminate possible loss of habitat and disturbance from site maintenance.

4.12.8 To Wildlife from Transportation

Authorizing motorized vehicles for installing, maintaining, and reconstructing water development projects, including guzzlers, would maintain or enhance wildlife populations by ensuring a means to install and maintain water development projects.

Allowing registered motorized vehicle use only on the Dutchman Pass Road, Quo Vadis Mine Road, and Rattlesnake Canyon Road would concentrate noise, disturbance, and traffic accident impacts in these areas, but remove the opportunity for these interactions from the remainder of the NCA.

4.12.9 To Wildlife from Vegetation Management

Continuing ongoing efforts to map, monitor, and eradicate invasive plant species could minimize the spread of noxious or invasive species, which would result in long-term preservation of natural wildlife habitat characteristics within the NCA.

Managing vegetation in all MEAs to promote native plant communities and restore the plant productivity of disturbed areas through rehabilitation or revegetation would result in long-term restoration of wildlife habitat.

4.12.10 Impacts from Wildlife Management

Maintaining or improving current and potential wildlife habitat toward full ecological potential would provide for long-term protection and improvement of wildlife habitat characteristics. Managing recreation development and construction, including trails, near wildlife water developments with a 0.25-mile radius avoidance area would greatly reduce potential wildlife displacement from or abandonment in areas where trails were located near sensitive wildlife habitat.

Prohibiting commercial collection of reptiles and any surface disturbance associated with this collection would reduce potential decreases in wildlife abundance.

4.12.11 To Wildlife from Wildland Fire Management

Providing fire suppression efforts commensurate with resource and adjacent property values at risk could preserve wildlife habitat characteristics.

4.12.12 To Wildlife from Livestock Grazing

Management of the range consistent with the requirements of key perennial species would maintain wildlife habitat characteristics within the NCA.

4.13 Impacts To Air Quality

This section presents impacts to air quality from other management actions. This analysis is qualitative; however, if specific activities are proposed, at the implementation stage impacts to air quality would be compared to the National Ambient Air Quality Standards (NAAQS) or Nevada Ambient Air Quality Standards to ensure regulatory compliance and compliance with Clark County State Implementation Plans.

4.13.1 To Air Quality from Facilities

Actions associated with construction of facilities within the NCA would be contributors to particulate matter $(PM)_{10}$ emissions. These activities are short term in nature and would have to be conducted in compliance with *Clark County State Implementation Plan* (SIP) requirements and local dust control regulations.

4.13.2 To Air Quality from Lands and Realty

The various construction activities authorized under lands and realty (e.g., communication sites, transmission lines) would produce emissions of PM_{10}. Soil disturbance and travel on unpaved roads would be the main causes of these emissions. Tailpipe emissions from vehicular travel and emissions from equipment use also would occur. Minimal lands and reality activities are anticipated, however. All such activity would have to be in accordance with Clark County SIP and local dust control regulations.

4.13.3 To Air Quality from Transportation

Use of heavy equipment on unpaved roads for administrative purposes would cause emissions of carbon monoxide (CO) and volatile organic compounds (Voss). Maintenance of unpaved roads and shoulders of paved resource roads would cause PM emissions and tailpipe emissions. Emissions of particulate matter from road graders and heavy equipment operations would occur, but are short term in nature and present no long-term impacts to the NCA.

4.13.4 To Air Quality from Vegetation Management

Trucks and heavy equipment (bulldozers, etc.) used in vegetation management and control would cause dust from unpaved roads. Areas receiving vegetation treatment would add short-term increases in PM_{10} until vegetation recovered sufficiently to stabilize exposed soil. These emissions would be considered minor, however, and vegetation activity using heavy equipment would have to be conducted in accordance with Clark County SIP and local dust control regulations.

4.13.5 To Air Quality from Wildland Fire Management

Wildland fires could cause short-term emissions of Nitrogen Oxide (NO), Sulfur Dioxide $(SO)_2$, VOC, PM_{10}, and CO that could be spread over large portions of the area, depending on the size of the fire and wind conditions. In addition, PM_{10}, CO, NO, and Voss (which include hazardous air pollutants [HAP]) could result from use of heavy equipment during fire suppression activities. These impacts would be minor and short-term in nature because fire risk within the NCA is minimal.

4.13.6 To Air Quality from Air Quality

Impacts to air quality would result from activities causing exhaust emissions and fugitive dust, such as driving on designated roads; however, these impacts would be minor. Specific air quality mitigation actions would be developed on a case-by-case basis as part of activity specific plans and permits. For example, planed construction activities would be temporary in nature and would fall under section 94 of the Clark County Department of Air Quality and Environmental Management regulations. Any construction disturbance greater than 1/4 acre would require a valid dust control permit from the DAQEM, which would stipulate best management practices and dust control measures.

4.14 Impacts To Livestock Grazing

Impacts to livestock grazing operations would occur if such actions disrupted livestock movement, resulted in loss of forage such that the livestock operator or permittee would have to reduce operations, or increased human disturbance and harassment of livestock. Most of the actions contained in the management plan would not impact livestock operations. Actions that do impact livestock operations could have minor impacts, as described in this section.

4.14.1 To Livestock Grazing from Vegetation Management

Protection of plants designated as Special Status Species and their habitats occurring within the allotment would restrict livestock from grazing in those areas. However, because very few, if any, special status plant species currently exist within the allotment, the impacts would be negligible to minor.

4.14.2 To Livestock Grazing from Livestock Grazing

Prohibiting salt and mineral placement within the NCA could decrease concentrated areas of livestock grazing within the NCA that would be typically associated with salt and mineral placements. No new range improvements within the NCA could cause a negligible decrease in the amount of forage available to livestock.

4.15 Impacts To Socioeconomics And Environmental Justice

This section summarizes isocioeconomic impacts associated with resource management changes for the Sloan Canyon NCA. Socioeconomic impacts tend to result from the totality of management actions for a particular resource.

Along with wildlife, vegetation, and the physical environment, people are an integral part of ecosystems. Lifestyles, attitudes, beliefs, values, social structure, culture, and population characteristics affect, and are affected by, management actions such as those made by BLM for the NCA. In addition, BLM lands and BLM management of these lands have emotional meanings to many people. The social and cultural impacts of the management plan are addressed qualitatively, using best professional judgment based on the available information.

Most socioeconomic impacts of the proposed plan are expected to be negligible or minor, although impacts could range to major for user groups, for example OHV users.

4.15.1 To Socioeconomics from Recreation

Demand for recreational use of the NCA is highly likely to increase because of the following factors:

- Publication in local and regional tourist information media would heighten public awareness.
- The growing population of Clark County would result in increased demand.
- Loss of open space as Clark County grows would focus many recreational demands on remaining open spaces.
- Designation of the NCA would further attract recreational users. Notable aspects of the NCA, such as the Sloan Canyon Petroglyph Site and the presence of desert bighorn sheep, are likely to be special draws for visitation.
- The growing population of active senior (older than age 55) residents in the City of Henderson would place increased demands on the Sloan Canyon NCA.
- Development of lands close to the boundaries of the NCA would result in increased use from surrounding neighborhoods.

Without effective management of recreational use of the Sloan Canyon NCA, as demands increase so too would conflicts between visitors with different objectives and desires for different recreational experiences. Development of facilities could improve the quality of the recreational experience and could draw visitors from outside Clark County, resulting in a net economic stimulus (increased income and employment).

Fees could be charged in some areas of the NCA. Fees could have a minor impact on the ability of some individuals to use the NCA. Annual passes that reduce access costs for frequent users could be considered.

Under the proposed plan, mountain biking, equestrian activity, rock climbing, and rock hounding would be allowed, with certain controls—such as limitation to or exclusion from certain trails or areas. This could impact some users by limiting or changing their historical use of the NCA; however, trails and formal access areas would likely encourage many more users to visit the NCA. Prohibiting OHV use would have major effects on the user group and their use of the NCA.

Prohibiting dogs in 75 percent of the NCA would provide strong resource protection although it could limit recreational opportunities for dog owners. In designated areas of the NCA, dogs, on lead, could still accompany owners.

Requiring guided visitation during high-use periods and limiting the issuance of permits at other times could reduce visitor's flexibility for visiting the Petroglyph Management Area. This may have minor impacts on historical users.

4.15.2 To Socioeconomics from Facilities

The moderate level of proposed facility development, including a visitor center, would increase the quality of experience for most visitors and would provide a minor economic stimulus. Minor short-term increases in net economic activity would occur because of the infusion of construction spending. Over the long term, recreational spending (gas, hotels, food and beverages, charges for goods and services

offered by commercial outfitters or vendors operating under special recreation permits, etc.) by visitors from outside Clark County would result in a minor net economic stimulus.

4.15.3 To Socioeconomics from Lands and Realty

The Sloan Canyon NCA Act recognizes existing rights and places limitations on new ROWs and amendments. Existing communication ROWs would be renewed at the end of their term, and other existing ROW grants may be renewed at the end of their term. In either case, the ROWs may be modified to meet the intent of the Sloan Canyon NCA Act. Existing communication sites would remain as authorized. These management actions probably would maintain economic activity associated with the ROWs and could increase or decrease any conflicts with other user groups (e.g., aesthetic issues of communications sites for visitors seeking a primitive or semi-primitive experience), contingent on the locations and designs of the ROWs and any modifications.

Amendments and ROWs would be considered on a case-by-case basis, which could allow for new economic activity and could result in conflicts with other user groups. To the extent that any denied ROWs would result in routing of utilities surrounding the NCA, the additional costs of doing so would constitute an economic impact, with the degree of impact contingent on the types and lengths of utilities involved. These effects would be based on the directive of the Sloan Canyon NCA Act, however, not decisions contained in this PRMP. No new communication sites would be authorized, which could result in forgone economic activity. Film permits would be issued on a limited basis, which could allow for minor increases in economic activity.

4.15.4 To Socioeconomics from Transportation

Four roads would be open to motorized registered vehicles; all other roads and routes would be closed. This action would have a minor to moderate impact on elderly and handicapped users who desire or require motorized access to the NCA.

4.15.5 To Socioeconomics from Livestock Grazing

The proposed plan would provide for continued grazing use of the Hidden Valley Allotment. If the permittee voluntarily relinquished grazing privileges, permits, or leases, however, the allotment could be closed to further livestock grazing. A minor reduction in opportunities for local ranchers to maintain the ranching culture and lifestyle would occur if the permit were retired.

4.15.6 Environmental Justice

Executive Order 12898 regarding Federal Action to Address Environmental Justice in Minority Populations and Low-Income Populations requires that disproportionately high and adverse human health and environmental impacts of Federal programs, policies, and activities on minority or low-income populations be identified and addressed. Neither Clark County nor any of the five U.S. Census Bureau census tracts containing or surrounding the NCA:

- Have minority or low-income populations exceeding 50 percent
- Have a percentage of minority or low-income population that is 10 percent or greater than the figures for the state of Nevada.

Executive Order 12898, also requires BLM to consider impacts to the traditional lifestyle of a minority communities and archeological sites representing the ancestors of a minority community. For these

reasons, the BLM conducted an extensive planning process to identify interested Native American tribes, included them in the identification and evaluation of the NCA's cultural resources, and conducted an ethnographic survey. The Sloan Canyon NCA is known to contain one site of major interest to the region's Native Americans—the Sloan Canyon Petroglyph Site.

The proposed plan provides for and encourages consultation with Native Americans on issues that may affect Native American values and traditions. As provided for by law, provision has been made for the use of NCA lands and resources for traditional ceremonial purposes. As opportunities arise, Native American partnerships would be developed to enhance and improve cultural exhibits and to provide improved education on Native American issues for NCA visitors.

4.16 CUMULATIVE IMPACTS

Cumulative impacts are effects on the environment that result from the impact of implementing the proposed plan in combination with other actions outside the scope of this plan, either within the Sloan Canyon NCA or outside it. Cumulative impact analysis is required by Council on Environmental Quality (CEQ) regulations because environmental conditions result from many different factors that act together. The total effect of any single action cannot be determined by considering it in isolation but must be determined by considering the likely result of that action in conjunction with many others. Evaluation of potential impacts considers incremental impacts that may occur from the proposed project, including impacts from past, present, and reasonably foreseeable future actions (RFFA). Management decisions may be influenced by activities and conditions on adjacent public and nonpublic lands beyond the NCA boundary. Therefore, assessment data and information may span multiple scales, land ownerships, and jurisdictions. These assessments involve determinations that often are complex and, to some degree, are subjective.

4.16.1 Cumulative Analysis Methodology

The cumulative impacts discussion that follows considers the proposed plan in context of the broader human environment—specifically, actions that would occur outside the scope and geographic area covered by the RMP. Cumulative impact analysis is limited to important issues of national, regional, or local significance. Therefore, not all resources identified for the direct and indirect impact analysis in this EIS were analyzed for cumulative impacts.

Because of the programmatic nature of an RMP and cumulative assessment, the analysis tended to be broad and generalized to address potential effects that could occur from a reasonably foreseeable management scenario combined with other reasonably foreseeable activities or projects. As a result, this assessment was primarily qualitative for most resources because of lack of detailed information that would result from project-level decisions and other activities or projects. However, quantitative information was used whenever available and as appropriate to portray the magnitude of an impact. The analysis assessed the magnitude of cumulative impacts by comparing the environment in its baseline condition to that with the expected impacts of the proposed plan and other actions in the same geographic area. The magnitude of an impact was determined through a comparison of anticipated conditions against the naturally occurring baseline as depicted in the Affected Environment chapter or the long-term sustainability of a resource or social system.

The following factors were considered in this cumulative impact assessment:

- Federal, nonfederal, and private actions
- The potential for synergistic effects or synergistic interaction among or between effects

- The potential for effects to cross political and administrative boundaries
- Other spatial and temporal characteristics of each affected resource
- The comparative scale of cumulative impacts across the proposed plan.

4.16.2 Temporal and Spatial Boundaries

Temporal and spatial boundaries used in the cumulative analysis were developed on the basis of resources of concern and actions that might contribute to an impact. The baseline date for the cumulative impacts analysis was November 2002, which was when the NCA was established under the Sloan Canyon NCA Act. The temporal scope of this analysis is the life of this RMP, which encompasses a 20-year planning period.

Spatial boundaries varied and were larger for resources that were mobile or would migrate (for example, desert bighorn sheep populations) compared to resources that were stationary. In some cases, spatial boundaries might be contained within the NCA or an area of the NCA.

4.16.3 Past, Present, and Reasonably Foreseeable Future Actions

Past, present, and potential future actions were considered in the analysis to identify whether the environment had been degraded or enhanced and to what extent; whether ongoing activities were causing impacts; and trends for activities and impacts in the area. Projects and activities were evaluated on the basis of proximity, connection to the same environmental systems, potential for subsequent impacts or activity, similar impacts, the likelihood a project would occur, and whether the project was reasonably foreseeable.

Projects and activities considered in the cumulative analysis were identified through meetings held with cooperators and those BLM employees with local knowledge of the area. Cooperators and the BLM employees were asked to provide information on the most influential past, present, or reasonably foreseeable future actions. Additional information was obtained through discussions with agency officials and review of publicly available materials and websites.

Effects of past actions and activities have been manifested in the current condition of the resources, as described in the Affected Environment, Chapter 3. RFFAs are future actions that have been committed to or known proposals that could take place within the 20-year planning period. RFFA scenarios are projections made only for the prediction of future impacts; they are not actual planning decisions or resource commitments. Projections—which have been developed for analytical purposes only—are based on current conditions and trends and represent a best professional estimate. Unforeseen changes in factors such as economics, demand, and federal, State, and local laws and policies could result in different outcomes than those projected for this analysis.

Other potential future actions have been considered and eliminated from further analysis because there was only a small likelihood that these actions would be pursued and implemented within the life of the plan or because there was so little known about the potential action that formulating an analysis of impacts would be premature. In addition, potential future actions that would be protective of the environment (such as new potential threatened or endangered species listings or regulations related to fugitive dust emissions) would have little likelihood of creating major environmental consequences alone or in combination with this planning effort. Federal actions such as species listing would require BLM to reconsider decisions created from this plan because the consultations and relative impacts might no longer be appropriate. These potential future actions might have greater capacity to affect resource uses within

the Sloan Canyon NCA; until more information has been developed, however, no reasonable estimation of impacts could be developed.

Data on the precise locations and overall extent of resources within the Sloan Canyon NCA are considerable, although the information varies according to resource type and locale. Furthermore, understanding the impacts on and the interplay among these resources is evolving. As knowledge improves, management measures (adaptive or otherwise) would be considered to reduce potential cumulative impacts in accordance with law, regulations, and the RMP for the NCA.

4.16.4 Cumulative Impacts By Resource Category

Resource areas that have potential for cumulative impacts include the following: recreation, cultural, visual, lands and realty, vegetation, wildlife, and socioeconomics. Cumulative impacts are discussed only for resources or uses that might experience impacts. The other resources and uses would be expected to have negligible cumulative impacts and are not discussed.

Recreation

The cumulative impact boundaries for recreation include the NCA and Clark County. Development and population growth in the Las Vegas Valley and the City of Henderson is expected to increase casual recreation use in the urban interface. Increasing population growth would create a greater need for public land recreation. These trends are fostered by approximately 70,000 additional acres of BLM public lands potentially available for sale and development through 2018 and the Sloan Canyon NCA Act and improved transportation systems, including the Ivanpah Corridor near the NCA and McCullough Pass Road and Trail through the northern portion of the NCA. Development of the Ivanpah Airport, Ivanpah Corridor, and high-speed rail line would be likely to lead to additional tourism, development pressure, and associated recreation demand adjacent to the Sloan Canyon NCA. Although monitoring suggests that the current visitation to the Sloan Canyon NCA averages approximately 25,000 visitors annually, additional development and population growth adjacent to the boundaries probably would induce increased visitation and associated resource damage. Increased recreational demand adjacent to residential and urban areas would have major cumulative impacts on NCA facilities and resources and on visitor recreation experiences As population grows, illegal recreation activities such as casual target shooting, trash dumping, auto stripping, and driving on undesignated roads would continue to occur in remote public lands and would increase in relation to growth and development. Increased recreation could lead to decreased quality in the recreation experience from increased vandalism and surface disturbance, overcrowding, displacement to areas that have received limited use in the past, and increased user conflicts in the long term.

The range of recreation opportunities near urban areas also would be cumulatively reduced under the public land disposal, NCA, and Wilderness designations, including by sprawling development. Limits on and loss of opportunities would cause a shift of recreation use to other areas and reduce options available for current and future users, which might place greater demand on accessible BLM public lands. Disposal areas, past designations, and residential development would induce a shift from public land casual use to directed-use recreation, including developed facilities, trails, and community recreation areas, resulting in a cumulative loss of recreational freedom near urban areas.

Cumulative increases in development surrounding the Sloan Canyon NCA might detract from the visitor experience over time. Increased use of flight paths over remote public lands associated with the new Las Vegas heliport, the Henderson Executive Airport expansion, and the proposed Ivanpah Airport would create cumulative impacts that could include diminished visitor solitude and decreased quality of

recreation experiences. Mining activity, power plants, and power lines and infrastructure create visual intrusions that could detract from the visitor experience in the NCA and the Wilderness. Given the protective direction of the Sloan Canyon NCA under the Sloan Canyon NCA Act, RMP management actions attempted to preserve the visitor experience from these external activities.

Cultural Resources

The cumulative impact boundary for cultural resources includes the NCA and Clark County. Cultural resources within the NCA include 144 sites surveyed to date containing various types of cultural resources. Cumulative indirect impacts to cultural resources would likely be a result of population growth, and the cumulative ground disturbance of projects and activities listed in Section 4.16.3 Past, Present and Reasonably Foreseeable Future Actions; and cumulative impacts to recreation patterns described in Section 4.16.4, Recreation. Long-term cumulative increases in visitor use and outdoor recreation within the NCA would increase the probability and frequency of the types of impacts described in *Section 4.4 Impacts to Cultural Resources*. Cumulative impacts to cultural resources could include theft, vandalism, accidental damage, or unknowing damage.

Approximately 5,000 acres have been developed annually in Clark County from 1970 to 2003, and the BLM Disposal Final Environmental Impact Statement (EIS) assumes that this rate will continue in the Las Vegas Valley through 2018. Because this development might impact cultural resources, the protections and management proposed under this plan would provide an overall cumulative impact to remaining cultural resources valued by Native Americans and others within the Las Vegas Valley, and increase the importance of traditional Tribal use of the Sloan Canyon Petroglyph Site.

Visual Resources

The cumulative impact boundary for visual resources included key observation points from the NCA and areas within Clark County from which the NCA would be potentially visible. As development continues in the Las Vegas Valley and in close proximity to the NCA, particularly on the northern boundary, views from within the NCA are becoming more urban. Although some areas within the NCA have natural obstructions, such as canyon walls, many of the recreational and visitor use areas do have views of urban development. Because most visitors focus on views into the mountains within the NCA, however, viewer impacts would be minor.

Lands and Realty

The cumulative impact boundary for lands and realty includes the NCA, Clark County, and major ROW corridors that intersect the NCA. Development and additional power plants would place a greater demand on lands and realty actions in and outside the NCA, creating the need for additional ROWs for power lines and supporting development. The Sloan Canyon NCA Act is more restrictive on placement of future ROWs, however. Restrictions on ROWs in the NCA and the Wilderness, combined with restrictions from other management plans in the area, would have a major effect by reducing routing options and increasing construction costs for utilities.

Vegetation

The cumulative impact boundaries for vegetation include the NCA, watershed boundaries extending outside the NCA, and contiguous geologic formations. An increase in development and population growth in close proximity to the NCA would increase visitor use within the NCA. This increase in visitor use, along with new facility, road, and trail development within the NCA, could cause a cumulative loss

of native vegetation and an increase in the number of species and acres with non-native plant species. Special Status and sensitive plant species also could be affected through loss of habitat in and surrounding the NCA for such species.

Wildlife

The cumulative impact boundaries for wildlife extend beyond the NCA to include landforms, soil types, and vegetation communities in Clark County that provide forage sources, habitat and locations of water for reptile, bird and mammal species listed in the Affect Environment chapter. Major cumulative impacts to wildlife are expected to continue in the Las Vegas Valley from the increasing trend of residential development and resulting recreation use. Increased human habituation and visitation is encroaching into the areas, including the NCA, used by wildlife, leading to permanent loss of habitat; increased habitat degradation and fragmentation; displacement; increased disturbance and direct mortality from roadkills, predation, disease and drought.

The combination of increased human habituation and recreation use may also lead to major cumulative impacts to reptile populations if harvest and collection trends continue. Although within the NCA boundaries the collection of wildlife is only allowed for scientific purposes with a permit, collection of wildlife outside of the NCA might reduce the viability of wildlife populations in the area. Effects from reduced population viability would particularly critical for Special Status Species and sensitive species, particularly those with limited home ranges or low reproductive and recruitment rates. Mining activity south of the NCA would pose concern with regard to the threatened desert tortoise, and a loss of habitat for desert bighorn sheep, Gila monsters, and chuckwallas. This could reduce the viability of populations that exist within an area and increase the possibility of local population extinctions within the NCA. The proposed plan increases protections for wildlife species and habitat within the NCA. In addition, direction provided by the Clark County Multiple Species Habitat Conservation Plan (MSHCP) and increase attention to wildlife management areas and recovery units being set aside in southern Nevada to protect Special Status Species and sensitive species would be likely to reduce the intensity of these impacts.

Cumulative increases in power plants, power lines, and supporting infrastructure throughout the area might lead to increased surface disturbance and supporting roads, resulting in additional habitat fragmentation and a loss of wildlife habitat. This could reduce the viability of wildlife populations that use the NCA and surrounding area. Species that would require large areas of habitat might be more vulnerable to the loss of local populations. Construction activity and use of the North McCullough Road and Trial in the northern portion of the NCA could fragment the northern extent of a bighorn sheep lambing area. Concentrated use in the areas might displace bighorn sheep and disrupt reproductive cycles, reducing the viability of populations within the NCA and surrounding area. These factors, in combination, contribute to reduced population viability and might decrease native species biodiversity in the long term. The Wilderness and the southern portion of the NCA would receive limited use and experience fewer disturbances to wildlife species and habitat. As a result, management actions in the NCA are not expected to contribute to cumulative negative effects from development.

Remote areas on public lands and conservation areas, including the NCA, might become enclaves for displaced wildlife populations. However, increasing and altering aircraft flight paths, and aircraft use over remote public lands associated with the new Las Vegas heliport, the Henderson Executive Airport expansion, and the proposed Ivanpah Airport would increase noise in remote areas. The increase in noise might reduce habitat quality, disrupt migration or breeding patterns for species that are intolerant of disturbance. Species activities that would be particularly susceptible to noise and disturbance include bighorn sheep lambing and raptor nesting. This could reduce the viability of populations and increase the possibility of local extinctions in the NCA and surrounding area. Proposed NCA management actions and

the protective NCA designation could reduce noise from surface activity by eliminating or reducing designated OHV routes, concentrating activities, and focusing on non-motorized recreation uses.

Socioeconomics

The cumulative impact boundaries for socioeconomics include the NCA, areas immediately adjacent to the NCA, and Clark County. Clark County is one of the fastest-growing counties in the United States; its population increased 120 percent from 1990 to 2003. The Disposal Area Expansion and transportation projects described above make it reasonably foreseeable that a long-term increase in population growth would continue.

Because of the small magnitude of the socioeconomic impact of BLM's proposed actions relative to the long-term development trend in Clark County, The proposed plan would likely create negligible impacts on taxes, employment, population growth, and development of Clark County overall; however, the existence of the NCA may cause long-term increases in property values for adjacent landowners

Long-term demand for recreational use of the NCA would increase as a result of county population growth, including redirection of many recreational demands to the NCA from county areas being developed, the "designation effect" of the NCA, and development close to the boundaries of the NCA. As cumulative recreational demands on the NCA increased over time, conflicts between recreational uses would likely increase.

Reasonably foreseeable population growth and development within Clark County and the entire Las Vegas Valley would create long-term moderate to major indirect impacts to other resources within the NCA. The long-term trend of increasing development and population growth would be the indirect cause of most of the cumulative impacts considered under other resource topics of this section.

4.17 Irreversible and Irretrievable Commitment of Resources

Section 102(2)(C) of the National Environmental Policy Act requires discussion of any irreversible or irretrievable commitments of resources that would be involved in the plan if it were implemented. An irretrievable commitment of a resource is one in which the resource or its use is lost for a period of time. An irreversible commitment of a resource is one that cannot be reversed.

Implementation of the proposed management plan would not likely result in impacts that could be characterized as irreversible and irretrievable commitments. Some small-scale disruption to resources might occur, but it would be mitigated, as appropriate.

4.18 Unavoidable Adverse Impacts

Section 102(C) of the National Environmental Policy Act requires disclosure of any adverse environmental effects that cannot be avoided if the proposal is implemented. Unavoidable adverse impacts are those that remain following implementation of mitigation measures or impacts for which there are no mitigation measures. Some unavoidable adverse impacts would occur as a result of implementation of this PRMP. These impacts would be a result of increased visitation and recreational use of the NCA, in addition to surface disturbance. The proposed plan was developed to respond to these impacts, however, and to be protective of the resources while allowing land use to be as diverse as possible.

4.19 Relationship Between Local Short-Term Uses and Long-Term Productivity

Section 102(C) of the National Environmental Policy Act requires discussion of the relationship between local, short-term uses of the human environment and maintenance and enhancement of long-term productivity of resources. "Short-term" is defined as expected to occur within 1 to 5 years of implementation of the plan. "Long-term" is defined as after the first 5 years of implementation but within the life of the RMP.

The management decisions would result in various short-term effects, such as decreases in visual resource quality and recreational opportunities. The long-term productivity of resources within the NCA would not be diminished, however, because these short-term uses would be minimized by management actions to effect the opposite change over the long term. Overall, although there would be some disturbance to resources, the flexible and responsive management approaches within the proposed plan would protect the long-term productivity of the land, resources, and resource uses.

CHAPTER FIVE

Consultation and Coordination

5. CONSULTATION AND COORDINATION

The Bureau of Land Management (BLM) land use planning process is guided by laws, regulations, and policies that require BLM to seek public involvement at key points in the development and analyses of management plans. In addition, the Sloan Canyon National Conservation Area (NCA) Act, Title VI of the Clark County Act, requires BLM to coordinate with local governments and involve interested members of the public in developing a plan for the NCA. Consequently, the core of this planning process included many public interactions; information exchanges such as planning bulletins and the project website; federal agency, State, and local collaboration; and tribal and agency consultation. Facilitating public involvement early in the development of the management plan enabled BLM to develop reasonable alternatives and to prepare this Proposed Resource Management Plan (PRMP).

The Notice of Intent published in the *Federal Register* on September 15, 2003, formally announced that the BLM Las Vegas Field Office was preparing a Resource Management Plan (RMP) and associated Environmental Impact Statement (EIS) for the Sloan Canyon NCA. The notice encouraged the public and interested state, local, and tribal governments to participate in assisting the BLM with determining issues to be addressed in the planning alternatives and to be analyzed in the EIS.

5.1 INFORMATION DISSEMINATION

Throughout the planning process, information was provided to the public, and interested federal, state, local, and tribal governments in several ways, including the project website, mailers, legal notices, and independent newspaper, radio, and television articles.

5.1.1 Project Website

The project website, www.sloancanyon.org, is an interactive tool used by BLM to post for public access information about the NCA, photographs, bulletins, upcoming events, reports, draft or final documents, BLM contact information, and information about the planning process. The website also allowed the public to add itself to the mailing list. In addition, interested parties could electronically submit comments and concerns regarding NCA management planning during the scoping period and the comment period on the Draft RMP/EIS.

Shortly after the Draft RMP/EIS was published, the project website became unavailable as improvements were made to the security of all BLM websites. Although the Sloan Canyon NCA website was unavailable, there were other opportunities to contact BLM to request information on the Draft RMP/EIS, or to submit comments, including at public hearings, by mail, through the Sloan Information Center phone line, via facsimile (fax), and e-mail (sloan_information@bah.com). This contact information was published in the Notice of Availability and planning bulletin and provided at the public hearings for the Draft RMP/EIS.

5.1.2 Project Mailers

At key points in the planning process, BLM distributed bulletins and mailers to individuals and organizations on the Sloan Canyon project mailing list, including federal, State, and local government agencies; tribal government representatives; organizations; special-interest groups; and others who expressed an interest in the NCA planning process. The following mailers were produced and distributed:

- November 2003—bulletin that contained scoping information, including a brief introduction to the NCA, preliminary themes to be addressed during planning, information about how to provide input, and a schedule of upcoming public scoping meetings

- December 2003—postcard that reminded interested parties about the closing date of the public scoping period

- March 2004—bulletin that provided an overview of comments received during public scoping and outlined the next steps in the planning process

- March 2005—bulletin that announced the availability of the Draft RMP/EIS and information on the public hearings schedule and ways to submit comments on the draft

- September 2005—bulletin that announced the availability of the PRMP and Final EIS.

5.1.3 Legal Notices and Public Announcements

BLM provided the public with advance notice of the scoping meetings and the Draft RMP/EIS comment hearings through legal notices published in local newspapers, media releases issued to local television and radio stations, and informal flyers posted in community areas.

Notices about the Sloan Canyon NCA and the planning process have been appearing in local newspapers and on radio programs and television newscasts since the designation of the NCA in 2003. High media attention was given to the release and content of the Draft RMP/EIS. Indepth articles were published in the *Las Vegas Review Journal*, *Las Vegas Sun*, *Henderson View*, *Las Vegas Mercury*, *Las Vegas Weekly*, *Boulder City News*, *Henderson Home News*, *City Life*, *In Business*, and *Laughlin Times,* and news on the planning development was aired on the public radio station KNPR FM 88.9. Some examples of the newspaper articles include the following:

- September 3, 2003, the *Henderson View* published an article on the petroglyphs titled, "A Pictorial History."

- November 11, 2003, the *Las Vegas Review Journal* published an article discussing the federal land auction that earned $63 million to help develop the Sloan Canyon NCA titled, "Sloan Canyon: Sale To Protect Petroglyphs."

- February 11, 2004, the *Las Vegas Review Journal* published an article on the prehistoric artifacts at the Sloan Canyon NCA titled, "Sloan Canyon National Conservation Area: Artifacts Surprise Crew."

- April 14, 2005, the *Boulder City News*, published a discussion of the plan's alternatives and public hearings schedule, titled "Comments Sought on Sloan Canyon."

- April 14, 2005, the *Las Vegas Sun* published an article on the litter issues at the Sloan Canyon NCA titled, "People's Litter Turns Thing of Beauty into Ugly Mess." The *Green Valley News* (May 19 to 25, 2005,) also ran an article on the same issue titled, "Sloan Canyon Neighbors Fight Dumping in Area")."

- May 8, 2005, the *Las Vegas Review Journal* included an announcement for the public hearings titled, "Public Hearings Set on Sloan Canyon."

- May 11, 2005, the *Las Vegas Sun* published an article on the public hearings titled, "Off-Road, Bighorn Sheep Enthusiasts Critique Plan."
- June 19, 2005, the *Las Vegas Review Journal* published an article on cultural resource protection at the Sloan Canyon NCA titled, "Sloan Canyon Rock Art's Protection Gets Touchy."

5.1.4 Public Information Repositories

BLM established public information repositories at the Paseo Verde Library, the Boulder City Library, the North Las Vegas Library (Main Branch), the Summerlin Library, and at the BLM Las Vegas Field and Nevada State Offices. These repositories include information such as the Notice of Intent, a map of the NCA, and documents prepared during the planning process (e.g., Scoping Report, the Management Situation Analysis, and the Draft RMP/EIS, the PRMP). As final versions became available, draft documents were replaced.

5.2 PUBLIC SCOPING

Scoping is intended to identify public, tribal, and agency concerns with a proposed action; to determine which issues and alternatives require analysis; and to ensure that relevant issues drive the planning criteria. Preparing an RMP differs from other types of projects because there is no preconceived "proposed action" for which BLM is asking the public to respond. Instead, scoping for the Sloan Canyon NCA management plan involved asking the public, interested tribes, and other agencies for both general approaches and specific ideas regarding how the NCA and its resources might be managed, which could then be developed into management alternatives. Thus, contributions from members of the public, tribes, and agencies were incorporated from the start in developing the range of management approaches analyzed during development of the RMP.

The scoping period for the Sloan Canyon NCA officially began with the publication of the Notice of Intent on September 15, 2003, and ended on December 31, 2003. During this period, BLM announced the commencement of the planning process, conducted public scoping and tribal information meetings, and collected and evaluated comments from the public scoping meetings.

5.2.1 Scoping Meetings

Four public scoping meetings and three tribal information meetings were held in November and early December 2003 (Table 5.1). A total of 125 individuals attended the public scoping meetings that took place in an "open house" format, which presented an opportunity to interact with and direct comments and concerns to BLM resource specialists. The meeting agenda included brief welcome statements by the BLM managers and cooperating agencies and a presentation of the NCA, its resources, and the Sloan Canyon NCA Act.

Following the formal portion of the meeting, attendees reviewed display materials and fact sheets for additional information on the Sloan Canyon NCA and the RMP/EIS process. BLM resource specialists and representatives of cooperating agencies answered questions and received input. Individuals submitted comments on paper comment forms and directly into the project comment database via computers. Other ideas, recommendations, and concerns raised during informal discussions were recorded on flip charts and later entered into the comment database.

For the remainder of the scoping period, written comments were submitted to BLM by mail or through the project website.

Table 5.1. Public Scoping and Tribal Information Meetings

Date	Location	Meeting Type
November 13, 2003	Las Vegas, Nevada	Tribal Information
November 17, 2003	Henderson, Nevada	Public Scoping
November 18, 2003	North Las Vegas, Nevada	Public Scoping
November 19, 2003	Boulder City, Nevada	Public Scoping
November 20, 2003	Las Vegas (Summerlin), Nevada	Public Scoping
December 11, 2003	Parker, Arizona	Tribal Information
December 15, 2003	Sloan Canyon NCA	Tribal Information

5.2.2 Scoping Results

A total of 512 comments were received during the scoping comment period. The comments confirmed that the public, tribes, and agencies understood and embraced the concept of making recommendations for management of the NCA. The comments also provided many well-considered ideas, along with identifying related issues, concerns, and potential impacts. The comments were sorted into the following 12 topical categories: cultural resources, recreation, off-highway vehicles (OHV), urban interface issues, wilderness, access and transportation, lands and realty, natural resources, interpretation, visitor services, management issues, and funding.

A majority of the comments addressed recreation, access and transportation, and cultural resources, with widespread agreement that the Sloan Canyon Petroglyph Site should be protected. Cultural resources comments and issues advocated protection from impact of visitation, vandalism, and theft of resources. Some Native Americans requested the ability to conduct tribal ceremonies at the NCA. Recreation comments and issues ranged from hiking trails and mountain biking to camping and recreational target shooting. Access and transportation comments and issues ranged from constructing no new roads to identifying specific road locations and access points in the NCA.

Most other issues supported a range of ideas and management possibilities. A few of the comments received dealt with administrative actions (which do not require a plan decision to implement) or were outside the scope of the RMP to make decisions (e.g., changes to the NCA boundary). All issues and concerns submitted during the scoping period have been considered in the development of this RMP.

5.3 COMMUNITY INFORMATION MEETING

BLM hosted a Community Information Meeting at its Las Vegas Field Office on March 24, 2004, to provide cooperating agencies, local companies and organizations, and interested members of the public updates on the RMP planning process. The meeting agenda included an overview of the sequence of planning activities to follow the public scoping period; a brief discussion of comments received during scoping; a discussion on fundamental, infrastructure, and transportation and access alternatives; plans for interim management, particularly for reducing disturbance at the NCA; and volunteer opportunities.

5.4 DRAFT RESOURCE MANAGEMENT PLAN/ENVIRONMENTAL IMPACT STATEMENT

BLM announced the availability of the Draft RMP/EIS for public review and comment in the *Federal Register* on March 25, 2005. This announcement initiated a 90-day public comment period that ended on June 23, 2005. Governmental agencies, tribes, and the public were invited to submit their comments by mail, through the project website, e-mail, and fax, and at public hearings held on May 10 and 11, 2005.

Copies of the Draft RMP/EIS, in electronic or digital format, were mailed to members of the public who had commented during the scoping period; in addition, copies were made available at the information repositories, on the project website, and distributed upon request. The agencies and organizations who received copies of the Draft RMP/EIS were encouraged to review the document and provide comments. See Appendix J, Draft RMP/EIS Comments and Responses.

5.4.1 Public Hearings

Two hearings were conducted to provide members of the public an opportunity to comment on the Draft RMP/EIS. The hearings were held on May 10, 2005, from 6:00 p.m. to 8:00 p.m. at the BLM Las Vegas Field Office, attended by 31 members of the public, and on May 11, 2005, from 6:00 p.m. to 8:00 p.m. at the Paseo Verde Library in the City of Henderson, attended by 70 members of the public. BLM staff, cooperating agency representatives, and contractor staff also attended the hearings.

The hearings were open to the public, and as attendees arrived, they were asked to sign-in and were given an opportunity to view displays, including how to submit comments and take informational material such as copies of the Draft RMP/EIS. After introductory remarks by BLM and a slide presentation, individuals of the public were allowed 3 minutes each to voice their comments, which were recorded verbatim by a court reporter. Hardcopy comments from the public were collected at the hearings. Additionally, the public was invited to submit comments by mail, fax, or e-mail by the end of the comment period.

5.4.2 Hearing Results

Appendix J contains the comments received on the Draft RMP/EIS and responses to those comments. A total of 131 submissions were received by letter, fax, and e-mail. Most submissions contained more that one comment resulting in a total of 549 comments. The comments also provided many well-considered ideas, along with identifying related issues, concerns, and potential impacts. The comments were sorted into topical categories, including cultural resources, recreation, wilderness, access and transportation, lands and realty, wildlife, interpretation, facilities, and management issues.

By far, the greatest number of the comments addressed recreation issues. Many commented on management policies related to OHV recreation, with commenters supporting and opposing its use within the NCA. Another issue that received much attention was the designation of hiking trails and the identification of trail-use only hiking areas.

A few of the comments dealt with administrative actions (which do not require a plan decision to implement) or were outside the scope of the RMP to make decisions (e.g., changes to aircraft overflight). All issues and concerns submitted during the Draft RMP/EIS review period have been considered in the development of this PRMP.

5.5 AGENCY CONSULTATION AND COORDINATION

Title II, Section 202 of the Federal Land Policy and Management Act of 1976 (FLPMA) requires BLM to coordinate with certain federal, state and local agencies, Native American tribes, and other entities during the National Environmental Policy Act decisionmaking process. BLM is also directed to integrate National Environmental Policy Act requirements with other environmental review and consultation requirements to reduce paperwork and delays (40 *Code of Federal Regulations* [CFR] 1500.4-5). The BLM Las Vegas Field Office extended an invitation to the State of Nevada, Clark County, other agencies, and federal and local governments that have jurisdiction by law or could offer special expertise to the project. Below is a list of agencies, tribes, and organizations that committed to participating in the RMP/EIS development as cooperating agencies. Cooperating agencies joined BLM early in the planning process and actively participated in the planning meetings.

Cooperating Agencies

State of Nevada
Nevada Department of Wildlife (NDOW)
Nevada State Historic Preservation Office (SHPO)

County
Clark County Department of Comprehensive Planning

Local
City of Henderson
Boulder City

Native American Tribes
Las Vegas Paiute Tribe
Paiute Indian Tribe of Utah
Fort Mojave Indian Tribe

Initially, cooperating agencies were given a field tour of the NCA; were asked by BLM to provide existing data and other relevant information within the scope of their responsibilities, goals, and mandates; and were encouraged to work with BLM as full interdisciplinary team members to develop and assess alternatives and impacts. The BLM Las Vegas Field Office and the cooperating agencies conducted a series of meetings from January through August 2004 to develop and review management alternatives and impacts. The cooperating agencies then reviewed and commented on the Draft RMP/EIS before publication and afterward during the 90-day public comment period. They participated in the development of this PRMP by attending meetings and reviewing the document before its publication.

Many of the cooperating agencies became integral members of the interdisciplinary team for the RMP/EIS and attended extensive meetings to share their expertise with BLM and contractor staff, making this RMP/EIS truly a cooperative effort. The City of Henderson, which shares a border with roughly the north half of the NCA, made major contributions in providing its expertise to this planning effort; additionally, the City of Henderson is taking the NCA and its resources into account in its own city planning of streets, libraries, and other infrastructure in the rapidly developing lands bordering the NCA. See Section 5.7 for more detail on the consultation activities facilitated by BLM.

To comply with Section 7(c) of the Endangered Species Act of 1973, BLM consulted with the United States Fish and Wildlife Service (USFWS) to ensure the proposed RMP actions would neither compromise the existence of listed species nor destroy or adversely modify the critical habitat within the NCA (50 CFR 400). The USFWS referred BLM to the State of Nevada's Natural Heritage Program for verification of threatened, endangered, proposed, and candidate plant and animal species and species of concern in the NCA and for further evaluation of conservation needs for the project area (Appendix K). BLM began informal consultation with the USFWS concerning the Sloan Canyon NCA RMP/EIS in the spring 2004 and submitted a *Biological Assessment* (Appendix L) based on the PRMP to the USFWS in September 2005.

The NDOW was consulted concerning state-listed threatened and endangered wildlife and plant species. Coordination and consultation with NDOW would continue throughout the planning process and during implementation.

The BLM cultural resource management program operates in accordance with 36 CFR, Part 60, which outlines specific procedures for consultation between BLM and the SHPO. A National Programmatic Agreement among the SHPO, the Advisory Council on Historic Preservation, and BLM, which became effective in 1997, incorporates statewide protocol between BLM and SHPO, established reporting standards, and defined undertakings and activities that require consultation. The Nevada SHPO was a cooperating agency throughout the planning process and worked with BLM to ensure that historic properties were appropriately considered in the Sloan Canyon NCA RMP/EIS process. Consultation with the SHPO under the Nevada State Protocol and subsequent agreements would continue.

5.6 NATIVE AMERICAN TRIBES

The Sloan Canyon NCA is known to contain one site of major interest to Native American tribes—the Sloan Canyon Petroglyph Site; however, when this plan was initiated, it was unknown if other sites might exist. An intensive program to identify interested tribes and include them in the identification and evaluation of cultural resources was an integral part of the planning process. Along with the provisions of the NEPA and FLPMA, which are routinely implemented through tribal consultations in federal planning, the American Indian Religious Freedom Act (AIRFA) plays a special role when BLM is planning policies, which could directly or indirectly affect the management of a Traditional Cultural Property such as the Sloan Canyon Petroglyph Site. AIRFA's core mandate is to ensure that federal agencies do not inadvertently infringe upon the practice of traditional Native American religion.

Consultation with the tribes therefore occurred and continues on several different levels. Government-to-government consultations invited interested tribes to become cooperating agencies at the level of involvement of their choice, public information meetings were held at tribal locations, and an intensive ethnographic study was undertaken with the cooperation of tribal officials and individual members to identify and evaluate the cultural resources of the NCA. BLM is committed to continuing long-term consultation and cooperation with the tribes regarding the management of cultural aspects of the NCA. A Native American Coordinator has been assigned to the NCA staff to carry forward the relationships developed during this planning process. The BLM Native American Coordinator facilitated meetings with the tribes to provide updates on the Draft RMP/EIS and to develop a comprehensive Interpretive Plan.

The following Native American tribes were invited to participate in the planning process as cooperating agencies and to regularly receive planning updates:

Native American Tribes

- Chemehuevi Indian Tribes
- Colorado River Indians
- Fort Mojave Indian Tribe
- Hopi Tribal Council
- Hualapai Tribal Council
- Kaibab Paiute Tribe
- Las Vegas Paiute Tribe
- Moapa Paiute Tribe

- Pahrump Paiute Tribe
- Paiute Indian Tribe of Utah:
  - Indian Peaks Band
  - Kanosh Band
  - Koosharem Band
  - Shivwits Band
- Twenty-Nine Palms Band of Mission Indians.

5.7 MEETING SUMMARY

Table 5.2 summarizes the consultation activities facilitated by BLM throughout the RMP/EIS development.

Table 5.2. Summary of Consultation Activities

Date	Meeting Type	Topics/Issues Addressed
October 29, 2003	Cooperating Agency	Pre-scoping Coordination Meeting With Clark County and State Historic Preservation Office
December 5, 2003	Cooperating Agency	Agency Coordination Meeting With Clark County
January 15, 2004	Cooperating Agency	Preliminary Issues for Alternatives, Access and Transportation
January 20, 2004	Cooperating Agency	Field Tour (With Boulder City Representatives)
January 27, 2004	Cooperating Agency	Preliminary Issues for Alternatives, Access and Transportation
February 5, 2004	Cooperating Agency	Access Issues
February 18, 2004	Cooperating Agency	Field Tour Logistics
February 19, 2004	Cooperating Agency	Sloan Canyon NCA Planning Process
February 23, 2004	Tribal Organization	Field Tour (With Representatives of Kanosh Band of Paiutes, Aka Mahakav Society, Chambers Group, Far Western)
March 22, 2004	Cooperating Agency	Alternatives Theme and Objective Development, Mission, and Vision for the NCA
March 24, 2004	Community Information	Project Update to the Community
April 1, 2004	Cooperating Agency	Field Tour
April 6, 2004	Cooperating Agency	Access and Transportation
April 9, 2004	Tribal Organization	Field Tour for Aha Makav Cultural Society, Fort Mojave Tribe Representatives
April 10, 2004	Tribal Organization	NCA Site Visit by Las Vegas Paiute Tribe, Pahrump Paiute Tribe, and Moapa Paiute Tribe Representatives
April 13, 2004	Cooperating Agency	Field Tour (with Clark County Representatives)
April 15, 2004	Cooperating Agency	Access and Transportation
April 15, 2004	Cooperating Agency	Meeting with State Historic Preservation Office
April 19, 2004	Cooperating Agency	Access and Transportation
May 4, 2004	Cooperating Agency	Access and Transportation
June 1, 2004	Cooperating Agency	North McCullough Road and Trail Right-of-Way (ROW) Alternatives
June 10, 2004	Cooperating Agency	Henderson/BLM Road ROW
June 21–24, 2004	Cooperating Agency	Preliminary Alternatives
June 29, 2004	Cooperating Agency	Class II and Ethnographic Report Briefing
July 6, 2004	Cooperating Agency	Wildlife Alternatives
July 7, 2004	Cooperating Agency	Review of Alternatives for Petroglyph Site
August 4, 2004	Cooperating Agency	Engineering and Construction Approach to North McCullough Road and Trail
August 19, 2004	Cooperating Agency	North McCullough Road and Trail Right-of-Way (ROW)

Date	Meeting Type	Topics/Issues Addressed
August 24-26, 2004	Cooperating Agency	Preliminary Impacts and Cumulative Impacts
August 11, 2004	Fort Mojave Tribe	Update on RMP/EIS plan
September 4, 2004	Cooperating Agency	Preliminary Impacts and Cumulative Impacts Briefing Provided to Clark County Comprehensive Planning Manager
September 13, 2004	Cooperating Agency	Planning Update Provided to City of Boulder City
October 13, 2004	Las Vegas Paiute Tribe	Updated on RMP/EIS Plan
November 11, 2004	Chemehuevi Indian Tribe	Update on RMP/EIS Plan
February 23, 2005	Paiute Indian Tribe of Utah	Update on RMP/EIS and Plans for Comprehensive Interpretive Plan
March 1, 2005	Kaibab Paiute Tribe	Update on RMP/EIS and Plans for Comprehensive Interpretive Plan
April 9, 2005	Las Vegas Paiute Tribe	Tour of Sloan Canyon NCA and Plans for Comprehensive Interpretive Plan
May 6, 2005	Paiute Indian Tribe of Utah	Comprehensive Interpretive Plan
May 13, 2005	Las Vegas Paiute Tribe	Comprehensive Interpretive Plan
June 29, 2005	Cooperating Agency	Discussion on comments received on the Draft RMP/EIS and Next Steps
September 7-9, 2005	Tribes, government and local agencies, organizations, other individuals	Workshop for development of comprehensive interpretive plan for the Sloan Canyon NCA

5.8 List of Preparers and Reviewers

The Sloan Canyon RMP/EIS was prepared by a team of specialists from Booz Allen Hamilton, a third-party contractor, under the direction of and in a collaborative planning process with the BLM Las Vegas Field Office. Table 5.3 and Table 5.4 list those individuals by organization and their role in preparing this document. Additionally, Table 5.5 lists cooperating agencies' representatives.

Table 5.3. Bureau of Land Management Preparers and Reviewers

Contributor	Project Role	Qualifications
Charles Carroll	Sloan Canyon NCA Manager	B.A., Anthropology Years of Experience: 30
Sarah Sutherland	Project Manager/Lead Outdoor Recreation Planner; Facilities, Recreation, ROW, Transportation	B.S., Outdoor Recreation/Resource Management Years of Experience: 7
Patrick Putnam	Lead Outdoor Recreation Planner	B.S., Zoology/Biology Years of Experience: 15
Kathy August	Interpretation	B.S., Outdoor Recreation and Interpretation Years of Experience: 20
Bob Boyd	Water Quality, Geology, and Soils	B.S., Geophysics Years of Experience: 16
Kirsten Cannon	Public Affairs	B.A., Journalism Years of Experience: 8
Lisa Christianson	Air Quality	M.B.A. Years of Experience: 15
David Fanning	Abandoned Mines, Hazardous Material, Minerals/Geology	M.S., Geology Years of Experience: 23
Lola Henio	Interpretation	B.S., Wildlife Management Years of Experience: 14
Gerald Hickman	Wildlife	M.S., Natural Sciences B.S., Wildlife/Biology Years of Experience: 38
Roy Lee	Grazing	B.S., Range Management Years of Experience: 33

Contributor	Project Role	Qualifications
Greg Marfil	Fire Management	B.S., Wildlife Management; A.A., General Science; A.A.S., Wildland Fire Management Years of Experience: 13
Gayle Marrs-Smith	Vegetation	M.S., Botany B.S., Biology Years of Experience: 12
Donn Siebert	Wilderness, Visual Resource Management	B.S., Watershed Management Years of Experience: 26
Scott Stevens	Law Enforcement	B.S., Forestry/Recreation Resource Management Years of Experience: 21
Bob Taylor	GIS	B.S., Landscape Architecture Years of Experience: 30
Shawna Woods	Lands and Realty	B.S., Renewable Natural Resources/Range Science Years of Experience: 25
Sue Woods	Lands and Realty	B.S., Parks and Recreation Years of Experience: 15

Table 5.4. Booz Allen Hamilton Team Preparers and Reviewers

Contributor	Project Role	Qualifications
Pam Adams	Project Manager; NEPA Specialist; Earth Sciences	B.S., Geology Years of Experience: 20
Quincy Bahr	Interpretation, Cultural Resource, Water Resources and Quality	M.S., Natural Resource Management Planning B.S., Natural Resources Management and Planning A.S., Humanities, Arts and Social Sciences Years of Experience: 5
Kim Beheler	Project Websites	B.S., Business Information Technology Years of Experience: 1.5
Ginny Bengston	Cultural	M.A., Anthropology Years of Experience: 12
Dean Bibles	Public Lands	B.S., Range Management Years of Experience: 45
Tara Burkey	GIS	M.A., Applied Geography B.A., Geography and Environmental Studies Years of Experience: 5
Tim Canan	Air Quality	Master of Urban and Regional Planning B.S., Public Administration and Political Science Years of Experience: 17
Karen DeSimone	Public Affairs	M.A., Urban and Environmental Planning B.S., Environmental Sciences Years of Experience: 11
Amy Gilreath	Cultural	M.A., Anthropology Years of Experience: 25
Jared Gunnerson	Fire Management, Grazing	Master of Public Administration, Natural Resource Management B.A., Environmental Policy Years of Experience: 10
Trey Howell	GIS	B.A. Geography and Environmental Studies Years of Experience: 7
Thom Humber	GIS	B.A., Geography Years of Experience: 13
Eric Hurley	Socioeconomics and Environmental	M.S., and B.S., Economics

Contributor	Project Role	Qualifications
	Justice	Years of Experience: 4
Kyle Williams	GIS	M.S., Geology Certificate in Advanced GIS Years of Experience: 6
Greg Kloberdanz	Facilities, Lands and Realty	B.S., Environmental and Planning Landscape Architecture Years of Experience: 10
Melanie Martin	Cumulative Impacts	B.S., Agriculture Years of Experience: 5
Jim May	Lands and Realty, Alternatives Specialist	M.S., Water Resources Management B.A., Zoology Years of Experience: 34
Lisa McDonald	Socioeconomics and Environmental Justice	Ph.D., M.S., Mineral Economics B.S., Earth Science Years of Experience: 12
Anjana Mepani	RMP/EIS Document Manager, NEPA Specialist, Facilities	Master of Urban and Regional Planning B.A., Environmental Analysis and Design Years Experience: 7
Dan Morse	Recreation Specialist/Planner; Visual Resource Management, Recreation, Wilderness	M.S., Forest Economics B.S., Natural Resource Recreation Years of Experience: 4
Kasey Pearson	Transportation, ROW	B.A., Environmental Biology Years of Experience: 7
Al Pierson	Public Lands	B.S., Wildlife Science/Range Management Years of Experience: 32
Amanda Pryor	Vegetation Management, Special Status Species	M.S., Environmental Biology B.A., Biology Years of Experience: 9
Dana Purrone	Wildlife	B.A., International Policy/Environmental Policy B.A., Spanish Years of Experience: 6
Warner Reeser	Air Quality	Ph.D., Earth Resources M.S., Atmospheric Science B.A., Mathematics Years of Experience: 38
Florissa Reynoso	Technical Reviewer/Document Support	B.A., English Years of Experience: 4
Mike Sumner	Recreation	B.S., Recreation Resource Management Years of Experience: 4
Lloyd Tabing	Air Quality, Interpretation, Socioeconomics and Environmental Justice, Minerals	M.S., Land Use Management B.S., Natural Resource Management B.S., Urban Planning A.S., Health and Natural Science Years of Experience: 5
Leslie Watson	Vegetation Management, Special Status Species	B.S., Zoology Years of Experience: 15
Dave Wegner	Vegetation, Wildlife Management, Special Status Species	M.S., Aquatic Sciences B.S., Aquatic Ecology Years of Experience: 24

Table 5.5. Cooperating Agencies' Representatives

Cooperating Agency	Representative	Role
Boulder City	Vicki Mayes	City Manager/City Clerk
	Brok Armantrout	Community Development Director
City of Henderson	Stephanie Garcia-Vause	Principal Planner
	Jared Gerber	Planner
	James Dale	Assistant Manager, Division Real Property and Environmental Management
	Lance Olson	Supervising Engineer
	Robert Wilson	Real Property Specialist
	Robert Herr	Traffic Engineer
	John Rinaldi	Property Management and Redevelopment Manager
Clark County	Rob Mrowka	Planning Manager, Comprehensive Planning Environmental Planning Division
Nevada Department of Wildlife	Craig Stevenson	Habitat Biologist
State Historic Preservation Office	Alice M. Baldrica	Deputy State Historic Preservation Officer, Planner, and Archaeologist
Fort Mohave Indian Tribe	Linda Otera	Aha Makav Cultural Society
Las Vegas Paiute Tribe	Kenny Anderson	Manager, Environmental Programs
Paiute Indian Tribe of Utah	Dorena Martineau	Director, Cultural Resources

APPENDIX A

Enacting Legislation and Management Guidance

ENACTING LEGISLATION AND MANAGEMENT GUIDANCE

This appendix contains the enacting legislation and management guidance for the Sloan Canyon National Conservation Area. It includes —

Section 1.0 - Clark County Conservation of Public Land and Natural Resources Act of 2002, Title VI

Section 2.0 - Clark County Conservation of Public Land and Natural Resources Act of 2002, Title II

Section 3.0 - Wilderness Act of 1964

Section 4.0 - Planning Criteria for the Sloan Canyon NCA Resource Management Plan

Section 5.0 – Standard Operating Procedures

1.0 CLARK COUNTY CONSERVATION OF PUBLIC LAND AND NATURAL RESOURCES ACT OF 2002 (PUBLIC LAW 107-282-NOV. 6, 2002),TITLE VI

TITLE VI—SLOAN CANYON NATIONAL CONSERVATION AREA

SEC. 601. SHORT TITLE.

This title may be cited as the ''Sloan Canyon National Conservation Area Act''.

SEC. 602. PURPOSE.

The purpose of this title is to establish the Sloan Canyon National Conservation Area to conserve, protect, and enhance for the benefit and enjoyment of present and future generations the cultural, archaeological, natural, wilderness, scientific, geological, historical, biological, wildlife, educational, and scenic resources of the Conservation Area.

SEC. 603. DEFINITIONS.

In this title:

(1) CONSERVATION AREA.—The term ''Conservation Area'' means the Sloan Canyon National Conservation Area established by section 604(a).

(2) FEDERAL PARCEL.—The term ''Federal parcel'' means the parcel of Federal land consisting of approximately 500 acres that is identified as Tract A on the map entitled ''Southern Nevada Public Land Management Act'' and dated October 1, 2002.

(3) MANAGEMENT PLAN.—The term ''management plan'' means the management plan for the Conservation Area developed under section 605(b).

(4) MAP.—The term ''map'' means the map entitled ''Southern Nevada Public Land Management Act'' and dated October 1, 2002.

SEC. 604. ESTABLISHMENT.

(a) IN GENERAL.—For the purpose described in section 602, there is established in the State a conservation area to be known as the Sloan Canyon National Conservation Area.

(b) AREA INCLUDED.—The Conservation Area shall consist of approximately 48,438 acres of public land in the County, as generally depicted on the map.

(c) MAP AND LEGAL DESCRIPTION.—

(1) IN GENERAL.—As soon as practicable after the date of enactment of this Act, the Secretary shall submit to Congress a map and legal description of the Conservation Area.

(2) EFFECT.—The map and legal description shall have the same force and effect as if included in this section, except that the Secretary may correct minor errors in the map or legal description.

(3) PUBLIC AVAILABILITY.—A copy of the map and legal description shall be on file and available for public inspection in the appropriate office of the Bureau of Land Management.

SEC. 605. MANAGEMENT.

(a) IN GENERAL.—The Secretary, acting through the Director of the Bureau of Land Management, shall manage the Conservation Area—

(1) in a manner that conserves, protects, and enhances the resources of the Conservation Area; and

(2) in accordance with—

(A) the Federal Land Policy and Management Act of 1976 (43 U.S.C. 1701 et seq.); and

(B) other applicable law, including this Act.

(b) MANAGEMENT PLAN.—

(1) IN GENERAL.—Not later than 3 years after the date of enactment of this Act, the Secretary, in consultation with the State, the city of Henderson, the County, and any other interested persons, shall develop a management plan for the Conservation Area.

(2) REQUIREMENTS.—The management plan shall—

(A) describe the appropriate uses and management of the Conservation Area;

(B)(i) authorize the use of motorized vehicles in the Conservation Area—

(I) for installing, repairing, maintaining, and reconstructing water development projects, including guzzlers, that would enhance the Conservation Area by promoting healthy, viable, and more naturally distributed wildlife populations; and

(II) subject to any limitations that are not more restrictive than the limitations on such uses authorized in wilderness areas under section 208; and

(ii) include or provide recommendations on ways of minimizing the visual impacts of such activities on the Conservation Area;

(C) include a plan for litter cleanup and public lands awareness campaign on public lands in and around the Conservation Area; and

(D) include a recommendation on the location for a right-of-way for a rural roadway to provide the city of Henderson with access to the Conservation Area, in accordance with the application numbered N–65874.

(c) USES.—The Secretary shall allow only such uses of the Conservation Area that the Secretary determines will further the purpose described in section 602.

(d) MOTORIZED VEHICLES.—Except as needed for administrative purposes or to respond to an emergency, the use of motorized vehicles in the Conservation Area shall be permitted only on roads and trails designated for the use of motorized vehicles by the management plan developed under subsection (b).

(e) WITHDRAWAL.—

(1) IN GENERAL.—Subject to valid existing rights, all public land in the Conservation Area is withdrawn from—

(A) all forms of entry and appropriation under the public land laws;

(B) location, entry, and patent under the mining laws; and

(C) operation of the mineral leasing, mineral materials, and geothermal leasing laws.

(2) ADDITIONAL LAND.—Notwithstanding any other provision of law, if the Secretary acquires mineral or other interests in a parcel of land within the Conservation Area after the date of enactment of this Act, the parcel is withdrawn from operation of the laws referred to in paragraph (1) on the date of acquisition of the land.

(f) HUNTING, FISHING, AND TRAPPING.—

(1) IN GENERAL.—Nothing in this title affects the jurisdiction of the State with respect to fish and wildlife, including hunting, fishing, and trapping in the Conservation Area.

(2) LIMITATIONS.—

(A) REGULATIONS.—The Secretary may designate by regulation areas in which, and establish periods during which, for reasons of public safety,

administration, or compliance with applicable laws, no hunting, fishing, or trapping will be permitted in the Conservation Area.

(B) CONSULTATION.—Except in emergencies, the Secretary shall consult with the appropriate State agency before promulgating regulations under subparagraph (A) that close a portion of the Conservation Area to hunting, fishing, or trapping.

(g) NO BUFFER ZONES.—

(1) IN GENERAL.—The establishment of the Conservation Area shall not create an express or implied protective perimeter or buffer zone around the Conservation Area.

(2) PRIVATE LAND.—If the use of, or conduct of an activity on, private land that shares a boundary with the Conservation Area is consistent with applicable law, nothing in this title concerning the establishment of the Conservation Area shall prohibit or limit the use or conduct of the activity.

SEC. 606. SALE OF FEDERAL PARCEL.

(a) IN GENERAL.—Notwithstanding sections 202 and 203 of the Federal Land Policy and Management Act of 1976 (43 U.S.C. 1712, 1713) and subject to valid existing rights, not later than 1 year after the date of enactment of this Act, the Secretary shall convey to the highest qualified bidder all right, title, and interest of the United States in and to the Federal parcel.

(b) DISPOSITION OF PROCEEDS.—Of the gross proceeds from the conveyance of land under subsection (a)—

(1) 5 percent shall be available to the State for use in the general education program of the State; and

(2) the remainder shall be deposited in the special account established under the Southern Nevada Public Lands Management Act of 1998 (Public Law 105–263; 112 Stat. 2345), to be available to the Secretary, without further appropriation for—

(A) the construction and operation of facilities to support the management of the Conservation Area;

(B) the construction and repair of trails and roads in the Conservation Area authorized under the management plan;

(C) research on and interpretation of the archaeological and geological resources of the Conservation Area;

(D) conservation and research relating to the Conservation Area; and

(E) any other purpose that the Secretary determines to be consistent with the purpose described in section 602.

SEC. 607. RIGHT-OF-WAY.

Not later than 180 days after the date of enactment of this Act, the Secretary shall convey to the City of Henderson the public right-of-way requested for public trail purposes under the application numbered N–76312 and the public right-of-way requested for public trail purposes under the application numbered N–65874.

2.0 CLARK COUNTY CONSERVATION OF PUBLIC LAND AND NATURAL RESOURCES ACT OF 2002 (PUBLIC LAW 107-282-NOV. 6, 2002), TITLE II

TITLE II--WILDERNESS AREAS

SEC. 201. FINDINGS.

The Congress finds that--

(1) public land in the County contains unique and spectacular natural resources, including--

(A) priceless habitat for numerous species of plants and wildlife; and

(B) thousands of acres of pristine land that remain in a natural state;

(2) continued preservation of those areas would benefit the County and all of the United States by--

(A) ensuring the conservation of ecologically diverse habitat;

(B) conserving primitive recreational resources; and

(C) protecting air and water quality.

SEC. 202. ADDITIONS TO NATIONAL WILDERNESS PRESERVATION SYSTEM.

(a) ADDITIONS- The following land in the State is designated as wilderness and as components of the National Wilderness Preservation System:

(1) ARROW CANYON WILDERNESS- Certain Federal land managed by the Bureau of Land Management, comprising approximately 27,530 acres, as generally depicted on the map entitled `Arrow Canyon', dated October 1, 2002, which shall be known as the `Arrow Canyon Wilderness'.

(2) BLACK CANYON WILDERNESS- Certain Federal land within the Lake Mead National Recreation Area and an adjacent portion of Federal land managed by the Bureau of Land Management, comprising approximately 17,220 acres, as generally depicted on the map entitled `Eldorado/Spirit Mountain', dated October 1, 2002, which shall be known as the `Black Canyon Wilderness'.

(3) BRIDGE CANYON WILDERNESS- Certain Federal land within the Lake Mead National Recreation Area, comprising approximately 7,761acres, as generally depicted on the map entitled `Eldorado/Spirit Mountain', dated October 1, 2002, which shall be known as the `Bridge Canyon Wilderness'.

(4) ELDORADO WILDERNESS- Certain Federal land within the Lake Mead National Recreation Area and an adjacent portion of Federal land managed by the Bureau of Land Management, comprising approximately 31,950 acres, as generally depicted on the map entitled `Eldorado/Spirit Mountain', dated October 1, 2002, which shall be known as the `Eldorado Wilderness'.

(5) IRETEBA PEAKS WILDERNESS- Certain Federal land within the Lake Mead National Recreation Area and an adjacent portion of Federal land managed by the Bureau of Land Management, comprising approximately 32,745 acres, as generally depicted on the map entitled `Eldorado/Spirit Mountain', dated October 1, 2002, which shall be known as the `Ireteba Peaks Wilderness'.

(6) JIMBILNAN WILDERNESS- Certain Federal land within the Lake Mead National Recreation Area, comprising approximately 18,879 acres, as generally depicted on the map entitled `Muddy Mountains', dated October 1, 2002, which shall be known as the `Jimbilnan Wilderness'.

(7) JUMBO SPRINGS WILDERNESS- Certain Federal land managed by the Bureau of Land Management, comprising approximately 4,631 acres, as generally depicted on the map entitled `Gold Butte', dated October 1, 2002, which shall be known as the `Jumbo Springs Wilderness'.

(8) LA MADRE MOUNTAIN WILDERNESS- Certain Federal land within the Toiyabe National Forest and an adjacent portion of Federal land managed by the Bureau of Land Management, comprising approximately 47,180 acres, as generally depicted on the map entitled `Spring Mountains', dated October 1, 2002, which shall be known as the `La Madre Mountain Wilderness'.

(9) LIME CANYON WILDERNESS- Certain Federal land managed by the Bureau of Land Management, comprising approximately 23,233 acres, as generally depicted on the map entitled `Gold Butte', dated October 1, 2002, which shall be known as the `Lime Canyon Wilderness'.

(10) MT. CHARLESTON WILDERNESS ADDITIONS- Certain Federal land within the Toiyabe National Forest and an adjacent portion of Federal land managed by the Bureau of Land Management, comprising approximately 13,598 acres, as generally depicted on the map entitled `Spring Mountains', dated October 1, 2002, which shall be included in the Mt. Charleston Wilderness.

(11) MUDDY MOUNTAINS WILDERNESS- Certain Federal land within the Lake Mead National Recreation Area and an adjacent portion of land managed by the Bureau of Land Management, comprising approximately 48,019 acres, as generally depicted on the map entitled `Muddy Mountains', dated October 1, 2002, which shall be known as the `Muddy Mountains Wilderness'.

(12) NELLIS WASH WILDERNESS- Certain Federal land within the Lake Mead National Recreation Area, comprising approximately 16,423 acres, as generally depicted on the map entitled `Eldorado/Spirit Mountain', dated October 1, 2002, which shall be known as the `Nellis Wash Wilderness'.

(13) NORTH MCCULLOUGH WILDERNESS- Certain Federal land managed by the Bureau of Land Management, comprising approximately 14,763 acres, as generally depicted on the map entitled `McCulloughs', dated October 1, 2002, which shall be known as the `North McCullough Wilderness'.

(14) PINTO VALLEY WILDERNESS- Certain Federal land within the Lake Mead National Recreation Area, comprising approximately 39,173 acres, as generally depicted on the map entitled `Muddy Mountains', dated October 1, 2002, which shall be known as the `Pinto Valley Wilderness'.

(15) RAINBOW MOUNTAIN WILDERNESS- Certain Federal land within the Toiyabe National Forest and an adjacent portion of Federal land managed by the Bureau of Land Management, comprising approximately 24,997 acres, as generally depicted on the map entitled `Spring Mountains', dated October 1, 2002, which shall be known as the `Rainbow Mountain Wilderness'.

(16) SOUTH MCCULLOUGH WILDERNESS- Certain Federal land managed by the Bureau of Land Management, comprising approximately 44,245 acres, as generally depicted on the map entitled `McCulloughs', dated October 1, 2002, which shall be known as the `South McCullough Wilderness'.

(17) SPIRIT MOUNTAIN WILDERNESS- Certain Federal land within the Lake Mead National Recreation Area and an adjacent portion of Federal land managed by the Bureau of Land Management, comprising approximately 33,518 acres, as generally depicted on the map entitled `Eldorado/Spirit Mountain', dated October 1, 2002, which shall be known as the `Spirit Mountain Wilderness'.

18) WEE THUMP JOSHUA TREE WILDERNESS- Certain Federal land managed by the Bureau of Land Management, comprising approximately 6,050 acres, as generally depicted on the map entitled `McCulloughs', dated October 1, 2002, which shall be known as the `Wee Thump Joshua Tree Wilderness'.

(b) BOUNDARY-

(1) LAKE OFFSET- The boundary of any portion of a wilderness area designated by subsection (a) that is bordered by Lake Mead, Lake Mohave, or the Colorado River shall be 300 feet inland from the high water line.

(2) ROAD OFFSET- The boundary of any portion of a wilderness area designated by subsection (a) that is bordered by a road shall be at least 100 feet from the edge of the road to allow public access.

(c) MAP AND LEGAL DESCRIPTION-

(1) IN GENERAL- As soon as practicable after the date of enactment of this Act, the Secretary shall file a map and legal description of each wilderness area designated by subsection

(a) with the Committee on Resources of the House of Representatives and the Committee on Energy and Natural Resources of the Senate.

(2) EFFECT- Each map and legal description shall have the same force and effect as if included in this section, except that the Secretary may correct clerical and typographical errors in the map or legal description.

(3) AVAILABILITY- Each map and legal description shall be on file and available for public inspection in the appropriate offices of the Bureau of Land Management, National Park Service, or Forest Service, as applicable.

(d) WITHDRAWAL- Subject to valid existing rights, the wilderness areas designated in this section are withdrawn from--

(1) all forms of entry, appropriation, and disposal under the public land laws;

(2) location, entry, and patent under the mining laws; and

(3) operation of the mineral leasing, mineral materials, and geothermal leasing laws.

SEC. 203. ADMINISTRATION.

(a) MANAGEMENT- Subject to valid existing rights, each area designated as wilderness by this title shall be administered by the Secretary in accordance with the Wilderness Act (16 U.S.C. 1131 et seq.), except that--

(1) any reference in that Act to the effective date shall be considered to be a reference to the date of enactment of this Act; and

(2) any reference in that Act to the Secretary of Agriculture shall be considered to be a reference to the Secretary of the Interior with respect to lands administered by the Secretary of the Interior.

(b) LIVESTOCK- Within the wilderness areas designated under this title that are administered by the Bureau of Land Management, the grazing of livestock in areas in which grazing is established as of the date of enactment of this Act shall be allowed to continue, subject to such reasonable regulations, policies, and practices that the Secretary considers necessary, consistent with section 4(d)(4) of the Wilderness Act (16 U.S.C. 1133(d)(4)), including the guidelines set forth in Appendix A of House Report 101-405.

(c) INCORPORATION OF ACQUIRED LANDS AND INTERESTS- Any land or interest in land within the boundaries of an area designated as wilderness by this title that is acquired by the United States after the date of enactment of this Act shall be added to and administered as part of the wilderness area within which the acquired land or interest is located.

(d) WATER RIGHTS-

(1) FINDINGS- Congress finds that--

(A) the lands designated as Wilderness by this Act are within the Mojave Desert, are arid in nature, and include ephemeral streams;

(B) the hydrology of the lands designated as wilderness by this Act is locally characterized by complex flow patterns and alluvial fans with impermanent channels;

(C) the subsurface hydrogeology of the region is characterized by ground water subject to local and regional flow gradients and artesian aquifers;

(D) the lands designated as wilderness by this Act are generally not suitable for use or development of new water resource facilities and there are no actual or proposed water resource facilities and no opportunities for diversion, storage, or other uses of water occurring outside such lands that would adversely affect the wilderness or other values of such lands; and

(E) because of the unique nature and hydrology of these desert lands designated as wilderness by this Act and the existence of the Clark County Multi-Species Habitat Conservation Plan it is possible to provide for proper management and protection of the wilderness, perennial springs and other values of such lands in ways different from those used in other legislation.

(2) STATUTORY CONSTRUCTION-

(A) Nothing in this Act shall constitute or be construed to constitute either an express or implied reservation by the United States of any water or water rights with respect to the lands designated as Wilderness by this Act.

(B) Nothing in this Act shall affect any water rights in the State of Nevada existing on the date of the enactment of this Act, including any water rights held by the United States.

(C) Nothing in this subsection shall be construed as establishing a precedent with regard to any future wilderness designations.

(D) Nothing in this Act shall be construed as limiting, altering, modifying, or amending any of the interstate compacts or equitable apportionment decrees that apportion water among and between the State of Nevada and other States.

(E) Nothing in this subsection shall be construed as limiting, altering, modifying, or amending the Clark County Multi-Species Habitat Conservation Plan (MSHCP) with respect to the lands designated as Wilderness by this Act including the MSHCP's specific management actions for the conservation of perennial springs.

(3) NEVADA WATER LAW- The Secretary shall follow the procedural and substantive requirements of the law of the State of Nevada in order to obtain and hold any water rights not in existence on the date of enactment of this Act with respect to the wilderness areas designated by this Act.

(4) NEW PROJECTS-

(A) As used in this paragraph, the term `water resource' facility means irrigation and pumping facilities, reservoirs, water conservation works, aqueducts, canals, ditches, pipelines, wells, hydropower projects, and transmission and other ancillary facilities, and other water diversion, storage, and carriage structures. The term `water resource' facility does not include wildlife guzzlers.

(B) Except as otherwise provided in this Act, on and after the date of the enactment of this Act, neither the President nor any other officer, employee, or agent of the United States shall fund, assist, authorize, or issue a license or permit for the development of any new water resource facility within the wilderness areas designated by this Act.

SEC. 204. ADJACENT MANAGEMENT.

(a) IN GENERAL- Congress does not intend for the designation of wilderness in the State pursuant to this title to lead to the creation of protective perimeters or buffer zones around any such wilderness area.

(b) NONWILDERNESS ACTIVITIES- The fact that nonwilderness activities or uses can be seen or heard from areas within a wilderness designated under this title shall not preclude the conduct of those activities or uses outside the boundary of the wilderness area.

SEC. 205. MILITARY OVERFLIGHTS.

Nothing in this title restricts or precludes--

(1) low-level overflights of military aircraft over the areas designated as wilderness by this title, including military overflights that can be seen or heard within the wilderness areas;

(2) flight testing and evaluation; or

(3) the designation or creation of new units of special use airspace, or the establishment of military flight training routes, over the wilderness areas.

SEC. 206. NATIVE AMERICAN CULTURAL AND RELIGIOUS USES.

Nothing in this Act shall be construed to diminish the rights of any Indian Tribe. Nothing in this Act shall be construed to diminish tribal rights regarding access to Federal lands for tribal activities, including spiritual, cultural, and traditional food-gathering activities.

SEC. 207. RELEASE OF WILDERNESS STUDY AREAS.

(a) FINDING- Congress finds that, for the purposes of section 603 of the Federal Land Policy and Management Act of 1976 (43 U.S.C. 1782), the public land in the County administered by the Bureau of Land Management and the Forest Service in the following areas have been adequately studied for wilderness designation:

(1) The Garrett Buttes Wilderness Study Area.
(2) The Quail Springs Wilderness Study Area.
(3) The Nellis A, B, C Wilderness Study Area.
(4) Any portion of the wilderness study areas--
  (A) not designated as wilderness by section 202(a); and
  (B) designated for release on--
    (i) the map entitled `Muddy Mountains' and dated October 1, 2002;
    (ii) the map entitled `Spring Mountains' and dated October 1, 2002;
    (iii) the map entitled `Arrow Canyon' and dated October 1, 2002;
    (iv) the map entitled `Gold Butte' and dated October 1, 2002;
    (v) the map entitled `McCullough Mountains' and dated October 1, 2002;
    (vi) the map entitled `El Dorado/Spirit Mountain' and dated October 1, 2002; or
    (vii) the map entitled `Southern Nevada Public Land Management Act' and dated October 1, 2002.

(b) RELEASE- Except as provided in subsection (c), any public land described in subsection (a) that is not designated as wilderness by this title--

(1) is no longer subject to section 603(c) of the Federal Land Policy and Management Act of 1976 (43 U.S.C. 1782(c)); and
(2) shall be managed in accordance with--
  (A) land management plans adopted under section 202 of that Act (43 U.S.C. 1712);
  (B) existing cooperative conservation agreements.

(c) RIGHT-OF-WAY GRANT- The Secretary shall issue to the State-regulated sponsor of the Centennial Project the right-of-way for the construction and maintenance of two 500-kilovolt electrical transmission lines. The construction shall occur within a 500-foot-wide corridor that is released from the Sunrise Mountains Instant Study Area in the County as depicted on the Southern Nevada Public Land Management Act map, dated October 1, 2002.

SEC. 208. WILDLIFE MANAGEMENT.

(a) IN GENERAL- In accordance with section 4(d)(7) of the Wilderness Act (16 U.S.C. 1133(d)(7)), nothing in this title affects or diminishes the jurisdiction of the State with respect to fish and wildlife management, including the regulation of hunting, fishing, and trapping, in the wilderness areas designated by this title.

(b) MANAGEMENT ACTIVITIES- In furtherance of the purposes and principles of the Wilderness Act, management activities to maintain or restore fish and wildlife populations and the habitats to support such populations may be carried out within wilderness areas designated by this title where consistent with relevant wilderness management plans, in accordance with appropriate policies such as those set forth in Appendix B of House Report 101-405, including the occasional and temporary use of motorized vehicles, if such use, as determined by the Secretary, would promote healthy, viable, and more naturally distributed wildlife populations that would enhance wilderness values and accomplish those purposes with the minimum impact necessary to reasonably accomplish the task.

(c) EXISTING ACTIVITIES- Consistent with section 4(d)(1) of the Wilderness Act (16 U.S.C. 1133(d)) and in accordance with appropriate policies such as those set forth in Appendix B of House Report 101-405, the State may continue to use aircraft, including helicopters, to survey, capture, transplant, monitor, and provide water for wildlife populations, including bighorn sheep, and feral stock, horses, and burros.

3.0 NATIONAL WILDERNESS PRESERVATION SYSTEM (WILDERNESS ACT OF 1964)

Public Law 88-577
88th Congress, S. 4
September 3, 1964

An Act

To establish a National Wilderness Preservation System for the permanent good of the whole people, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

Short Title

Section 1. This Act may be cited as the "Wilderness Act".

Wilderness System Established Statement of Policy

Sec. 2. (a) In order to assure that an increasing population, accompanied by expanding settlement and growing mechanization, does not occupy and modify all areas within the United States and its possessions, leaving no lands designated for preservation and protection in their natural condition, it is hereby declared to be the policy of the Congress to secure for the American people of present and future generations the benefits of an enduring resource of wilderness. For this purpose there is hereby established a National Wilderness Preservation System to be composed of federally owned areas designated by Congress as "wilderness areas", and these shall be administered for the use and enjoyment of the American people in such manner as will leave them unimpaired for future use and enjoyment as wilderness; and no Federal lands shall be designated as "wilderness areas" except as provided for in this Act or by a subsequent Act.

(b) The inclusion of an area in the National Wilderness Preservation System notwithstanding, the area shall continue to be managed by the Department and agency having jurisdiction thereover immediately before its inclusion in the National Wilderness Preservation System unless otherwise provided by Act of Congress. No appropriation shall be available for the payment of expenses or salaries for the administration of the National Wilderness Preservation System as a separate unit nor shall any appropriations be available for additional personnel stated as being required solely for the purpose of managing or administering areas solely because they are included within the National Wilderness Preservation System.

Definition of Wilderness

(c) A wilderness, in contrast with those areas where man and his own works dominate the landscape, is hereby recognized as an area where the earth and its community of life are untrammeled by man, where man himself is a visitor who does not remain. An area of wilderness is further defined to mean in this Act an area of undeveloped Federal land retaining its primeval character and influence, without permanent improvements or human habitation, which is protected and managed so as to preserve its natural conditions and which (1) generally appears to have been affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable; (2) has outstanding opportunities for solitude or a

primitive and unconfined type of recreation; (3) has at least five thousand acres of land or is of sufficient size as to make practicable its preservation and use in an unimpaired condition; and (4) may also contain ecological, geological, or other features of scientific, educational, scenic, or historical value.

National Wilderness Preservation System -- Extent of System

Sec. 3. (a) All areas within the national forests classified at least 30 days before the effective date of this Act by the Secretary of Agriculture or the Chief of the Forest Service as "wilderness", "wild", or "canoe" are hereby designated as wilderness areas. The Secretary of Agriculture shall --

(1) Within one year after the effective date of this Act, file a map and legal description of each wilderness area with the Interior and Insular Affairs Committees of the United States Senate and the House of Representatives, and such descriptions shall have the same force and effect as if included in this Act: Provided, however, That correction of clerical and typographical errors in such legal descriptions and maps may be made.

(2) Maintain, available to the public, records pertaining to said wilderness areas, including maps and legal descriptions, copies of regulations governing them, copies of public notices of, and reports submitted to Congress regarding pending additions, eliminations, or modifications. Maps, legal descriptions, and regulations pertaining to wilderness areas within their respective jurisdictions also shall be available to the public in the offices of regional foresters, national forest supervisors, and forest rangers.

(b) The Secretary of Agriculture shall, within ten years after the enactment of this Act, review, as to its suitability or nonsuitability for preservation as wilderness, each area in the national forests classified on the effective date of this Act by the Secretary of Agriculture or the Chief of the Forest Service as "primitive" and report his findings to the President. The President shall advise the United States Senate and House of Representatives of his recommendations with respect to the designation as "wilderness" or other reclassification of each area on which review has been completed, together with maps and a definition of boundaries. Such advice shall be given with respect to not less than one-third of all the areas now classified as "primitive" within three years after the enactment of this Act, not less than two-thirds within seven years after the enactment of this Act, and the remaining areas within ten years after the enactment of this Act. Each recommendation of the President for designation as "wilderness" shall become effective only if so provided by an Act of Congress. Areas classified as "primitive" on the effective date of this Act shall continue to be administered under the rules and regulations affecting such areas on the effective date of this Act until Congress has determined otherwise. Any such area may be increased in size by the President at the time he submits his recommendation to the Congress by not more than five thousand acres with no more than one thousand two hundred and eighty acres of such increase in any one compact unit; if it is proposed to increase the size of any such area by more than five thousand acres or by more than one thousand two hundred and eighty acres in any one compact unit the increase in size shall not become effective until acted upon by Congress. Nothing herein contained shall limit the President in proposing, as part of his recommendations to Congress, the alteration of existing boundaries of primitive areas or recommending the addition of any contiguous area of national forest lands predominantly of wilderness value. Not withstanding any other provisions of this Act, the Secretary of Agriculture may complete his review and delete such area as may be necessary, but not to exceed seven thousand acres, from the southern tip of the Gore Range-Eagles Nest Primitive Area, Colorado, if the Secretary determines that such action is in the public interest.

(c) Within ten years after the effective date of this Act the Secretary of the Interior shall review every roadless area of five thousand contiguous acres or more in the national parks, monuments and other units of the national park system and every such area of, and every roadless island within, the national wildlife

refuges and game ranges, under his jurisdiction on the effective date of this Act and shall report to the President his recommendation as to the suitability or nonsuitability of each such area or island for preservation as wilderness. The President shall advise the President of the Senate and the Speaker of the House of Representatives of his recommendation with respect to the designation as wilderness of each such area or island on which review has been completed, together with a map thereof and a definition of its boundaries. Such advice shall be given with respect to not less than one-third of the areas and islands to be reviewed under this subsection within three years after enactment of this Act, not less than two-thirds within seven years of enactment of this Act, and the remainder within ten years of enactment of this Act. A recommendation of the President for designation as wilderness shall become effective only if so provided by an Act of Congress. Nothing contained herein shall, by implication or otherwise, be construed to lessen the present statutory authority of the Secretary of the Interior with respect to the maintenance of roadless areas within units of the national park system.

(d) (1) The Secretary of Agriculture and the Secretary of the Interior shall, prior to submitting any recommendations to the President with respect to the suitability of any area for preservation as wilderness--

(A) give such public notice of the proposed action as they deem appropriate, including publication in the Federal Register and in a newspaper having general circulation in the area or areas in the vicinity of the affected land;

(B) hold a public hearing or hearings at a location or locations convenient to the area affected. The hearings shall be announced through such means as the respective Secretaries involved deem appropriate, including notices in the Federal Register and in newspapers of general circulation in the area: Provided, That if the lands involved are located in more than one State, at least one hearing shall be held in each State in which a portion of the land lies;

(C) at least thirty days before the date of a hearing advise the Governor of each State and the governing board of each county, or in Alaska the borough, in which the lands are located, and Federal departments and agencies concerned, and invite such officials and Federal agencies to submit their views on the proposed action at the hearing or by not later than thirty days following the date of the hearing.

(d)(2) Any views submitted to the appropriate Secretary under the provisions of (1) of this subsection with respect to any area shall be included with any recommendations to the President and to Congress with respect to such area.

(e) Any modification or adjustment of boundaries of any wilderness area shall be recommended by the appropriate Secretary after public notice of such proposal and public hearing or hearings as provided on subsection (d) of this section. The proposed modification or adjustment shall then be recommended with map and description thereof to the President. The President shall advise the United States Senate and the House of Representatives of his recommendations with respect to such modification or adjustment and such recommendations shall become effective only on the same manner as provided for in subsections (b) and (c) of this section.

Use of Wilderness Areas

Sec. 4. (a) The purposes of this Act are hereby declared to be within and supplemental to the purposes for which national forests and units of the national park and national wildlife refuge systems are established and administered and --

(1) Nothing in this Act shall be deemed to be in interference with the purpose for which national forests are established as set forth in the Act of June 4, 1897 (30 Stat. 11), and the Multiple Use Sustained-Yield Act of June 12, 1960 (74 Stat. 215).

(2) Nothing in this Act shall modify the restrictions and provisions of the Shipstead-Nolan Act (Public Law 539, Seventy-first Congress, July 10, 1930; 46 Stat. 1020),the Thye-Blatnik Act (Public Law 733, Eightieth Congress, June 22, 1948; 62 Stat. 568), and the Humphrey-Thye-Blatnik-Andresen Act (Public Law 607, Eighty-fourth Congress, June 22.1965; 70 Stat. 326), as applying to the Superior National Forest or the regulations of the Secretary of Agriculture.

(3) Nothing in this Act shall modify the statutory authority under which units of the national park system are created. Further, the designation of any area of any park, monument, or other unit of the national park system as a wilderness area pursuant to this Act shall in no manner lower the standards evolved for the use and preservation of such park, monument, or other unit of the national park system in accordance with the Act of August 25, 1916, the statutory authority under which the area was created, or any other Act of Congress which might pertain to or affect such area, including, but not limited to, the Act of June 8, 1906 (34 Stat. 225; 16 U.S.C. 432 et seq.); section 3(2) of the Federal Power Act (16 U.S.C. 796 (2)); and the Act of August 21,1935 (49 Stat. 666; 16 U.S.C. 461 et seq.).

(b) Except as otherwise provided in this Act, each agency administering any area designated as wilderness shall be responsible for preserving the wilderness character of the area and shall so administer such area for such other purposes for which it may have been established as also to preserve its wilderness character. Except as otherwise provided in this Act, wilderness areas shall be devoted to the public purposes of recreational, scenic, scientific, educational, conservation, and historical use.

Prohibition of Certain Uses

(c) Except as specifically provided for in this Act, and subject to existing private rights, there shall be no commercial enterprise and no permanent road within any wilderness area designated by this Act and, except as necessary to meet minimum requirements for the administration of the area for the purpose of this Act (including measures required in emergencies involving the health and safety of persons within the area), there shall be no temporary road, no use of motor vehicles, motorized equipment or motorboats, no landing of aircraft, no other form of mechanical transport, and no structure or installation within any such area.

Special Provisions

(d) The following special provisions are hereby made:

(1) Within wilderness areas designated by this Act the use of aircraft or motorboats, where these uses have already become established, may be permitted to continue subject to such restrictions as the Secretary of Agriculture deems desirable. In addition, such measures may be taken as may be necessary in the control of fire, insects, and diseases, subject to such conditions as the Secretary deems desirable.

(2) Nothing in this Act shall prevent within national forest wilderness areas any activity, including prospecting, for the purpose of gathering information about mineral or other resources, if such activity is carried on in a manner compatible with the preservation of the wilderness environment. Furthermore, in accordance with such program as the Secretary of the Interior shall develop and conduct in consultation with the Secretary of Agriculture, such areas shall be surveyed on a planned, recurring basis consistent with the concept of wilderness preservation by the Geological Survey and the Bureau of Mines to

determine the mineral values , if any, that may be present; and the results of such surveys shall be made available to the public and submitted to the President and Congress.

(3) Not withstanding any other provisions of this Act, until midnight December 31, 1983, the United States mining laws and all laws pertaining to mineral leasing shall, to the extent as applicable prior to the effective date of this Act, extend to those national forest lands designated by this Act as "wilderness areas"; subject, however, to such reasonable regulations governing ingress and egress as may be prescribed by the Secretary of Agriculture consistent with the use of the land for mineral location and development and exploration, drilling, and production, and use of land for transmission lines, waterlines, telephone lines, or facilities necessary in exploring, drilling, producing, mining, and processing operations, including where essential the use of mechanized ground or air equipment and restoration as near as practicable of the surface of the land disturbed in performing prospecting, location, and , in oil and gas leasing, discovery work, exploration, drilling, and production, as soon as they have served their purpose. Mining locations lying within the boundaries of said wilderness areas shall be held and used solely for mining or processing operations and uses reasonably incident thereto; and hereafter, subject to valid existing rights, all patents issued under the mining laws of the United States affecting national forest lands designated by this Act as wilderness areas shall convey title to the mineral deposits within the claim, together with the right to cut and use so much of the mature timber therefrom as may be needed in the extraction, removal, and beneficiation of the mineral deposits, if needed timber is not otherwise reasonably available, and if the timber is cut under sound principles of forest management as defined by the national forest rules and regulations, but each such patent shall reserve to the United States all title in or to the surface of the lands and products thereof, and no use of the surface of the claim or the resources therefrom not reasonably required for carrying on mining or prospecting shall be allowed except as otherwise expressly provided in this Act: Provided, That, unless hereafter specifically authorized, no patent within wilderness areas designated by this Act shall issue after December 31, 1983, except for the valid claims existing on or before December 31, 1983. Mining claims located after the effective date of this Act within the boundaries of wilderness areas designated by this Act shall create no rights in excess of those rights which may be patented under the provisions of this subsection. Mineral leases, permits, and licenses covering lands within national forest wilderness areas designated by this Act shall contain such reasonable stipulations as may be prescribed by the Secretary of Agriculture for the protection of the wilderness character of the land consistent with the use of the land for the purposes for which they are leased, permitted, or licensed. Subject to valid rights then existing, effective January 1,1984, the minerals in lands designated by this Act as wilderness areas are withdrawn from all forms of appropriation under the mining laws and from disposition under all laws pertaining to mineral leasing and all amendments thereto.

(4) Within wilderness areas in the national forests designated by this Act, (1) the President may, within a specific area and in accordance with such regulations as he may deem desirable, authorize prospecting for water resources, the establishment and maintenance of reservoirs, water-conservation works, power projects, transmission lines, and other facilities needed in the public interest, including the road construction and maintenance essential to development and use thereof, upon his determination that such use or uses in the specific area will better serve the interests of the United States and the people thereof than will its denial; and (2) the grazing of livestock, where established prior to the effective date of this Act, shall be permitted to continue subject to such reasonable regulations as are deemed necessary by the Secretary of Agriculture.

(5) Other provisions of this Act to the contrary notwithstanding, the management of the Boundary Waters Canoe Area, formerly designated as the Superior, Little Indian Sioux, and Caribou Roadless Areas, in the Superior National Forest, Minnesota, shall be in accordance with the general purpose of maintaining, without unnecessary restrictions on other uses, including that of timber, the primitive character of the

area, particularly in the vicinity of lakes, streams, and portages: Provided, That nothing in this Act shall preclude the continuance within the area of any already established use of motorboats.

(6) Commercial services may be performed within the wilderness areas designated by this Act to the extent necessary for activities which are proper for realizing the recreational or other wilderness purposes of the areas.

(7) Nothing in this Act shall constitute an express or implied claim or denial on the part of the Federal Government as to exemption from State water laws.

(8) Nothing in this Act shall be construed as affecting the jurisdiction or responsibilities of the several States with respect to wildlife and fish in the national forests.

State and Private Lands Within Wilderness Areas

Sec. 5. (a) In any case where State-owned of privately owned land is completely surrounded by national forest lands within areas designated by this Act as wilderness, such State or private owner shall be given such rights as may be necessary to assure adequate access to such State-owned or privately owned land by such State or private owner and their successors in interest, or the State-owned land or privately owned land shall be exchanged for federally owned land in the same State of approximately equal value under authorities available to the Secretary of Agriculture: Provided, however, That the United States shall not transfer to a state or private owner any mineral interests unless the State or private owner relinquishes or causes to be relinquished to the United States the mineral interest in the surrounded land.

(b) In any case where valid mining claims or other valid occupancies are wholly within a designated national forest wilderness area, the Secretary of Agriculture shall, by reasonable regulations consistent with the preservation of the area as wilderness, permit ingress and egress to such surrounded areas by means which have been or are being customarily enjoyed with respect to other such areas similarly situated.

(c) Subject to the appropriation of funds by Congress, the Secretary of Agriculture is authorized to acquire privately owned land within the perimeter of any area designated by this Act as wilderness if (1) the owner concurs in such acquisition or (2) the acquisition is specifically authorized by Congress.

Gifts, Bequests, and Contributions

Sec. 6. (a) The Secretary of Agriculture may accept gifts or bequests of land within wilderness areas designated by this Act for preservation as wilderness. The Secretary of Agriculture may also accept gifts or bequests of land adjacent to wilderness areas designated by this Act for preservation as wilderness if he has given sixty days advance notice thereof to the President of the Senate and the Speaker of the House of Representatives. Land accepted by the Secretary of Agriculture under this section shall become part of the wilderness area involved. Regulations with regard to any such land may be in accordance with such agreements, consistent with the policy of this Act, as are made at the time of such gift, or such conditions, consistent with such policy, as may be included in, and accepted with, such bequest.

(b) The Secretary of Agriculture or the Secretary of the Interior is authorized to accept private contributions and gifts to be used to further the purpose of this Act.

Annual Reports

Sec. 7. At the opening of each session of Congress, the Secretaries of Agriculture and Interior shall jointly report to the President for transmission to Congress on the status of the wilderness system, including a list

and descriptions of the areas in the system, regulations in effect, and other pertinent information, together with any recommendations they may care to make.

Approved September 3, 1964.

Legislative History

House Reports: No. 1538 accompanying H.R. 9070 (Comm. on Interior & Insular affairs) and No. 1829 (Comm. of Conference).

Senate Report No. 109 (Comm. on Interior & Insular Affairs).

Congressional Record:

Vol. 109 (1963): Apr. 4, 8, considered in Senate. Apr. 9, considered and passed Senate.

Vol. 110 (1964): July 28, considered in House. July 30, considered and passed House, amended, in lieu of H. R. 9070. Aug. 20, House and Senate agreed to conference report.

4.0 PLANNING CRITERIA FOR THE SLOAN CANYON NATIONAL CONSERVATION AREA RESOURCE MANAGEMENT PLAN

4.1 Introduction

Federal regulations guide Bureau of Land Management's (BLM's) development of Resource Management Plans (RMPs) and their corresponding planning criteria. These regulations (43 Code of Federal Regulations [CFR] 1610.4-2) require the preparation of planning criteria to ensure that management decisions contained in forthcoming RMPs are tailored to the issues that prompted the planning effort and to help BLM gather the data that is scaled appropriately within the scope of the planning effort. Specifically, these regulations state—

> "The District or Area Manager shall prepare criteria to guide development of the resource management plan or revision, to ensure that it is tailored to the issues previously identified and to ensure that unnecessary data collection and analyses are avoided. Planning criteria shall generally be based upon applicable law, Director and State Director guidance, the results of public participation and coordination with other Federal agencies, State and local governments and Indian tribes. Proposed planning criteria, including any significant changes, shall be made available for public comment prior to being approved by the District manager for use in the planning process. Planning criteria may be changed as planning proceeds, based on public suggestions and the findings of the various studies and assessments." (43 CFR 1610.4-2).

Planning criteria are the constraints that guide the development of the plan and determine how the planning team approaches the development of alternatives and ultimately selection of the proposed plan. They are based on standards prescribed by applicable laws and regulations; agency guidance; the result of consultation and coordination with the public, other federal, state and local agencies and governmental entities, and Native American Indian tribes; analysis of information pertinent to the planning area; and professional judgment.

Although planning criteria establish the sideboards for the planning process, they may be changed based on reasonable findings of issue analyses and public input to ensure that the planning process is responsive to these aspects. The criteria are published and made available to the public to ensure that public concerns are adequately represented in the criteria and the overall RMP.

4.2 Sloan Canyon National Conservation Area

The Clark County Conservation of Public Land and Natural Resources Act of 2002 (Act) established the Sloan Canyon National Conservation Area (NCA) to conserve, protect, and enhance for future generations the cultural, archaeological, natural, wilderness, scientific, geological, historical, biological, wildlife, educational, and scenic resources of the Conservation Area.

The legislation mandates that BLM, "in consultation with the State of Nevada, the city of Henderson, Clark County, and any other interested persons" develop a "management plan for the conservation area within three years of the enactment of the Act (by November 6, 2005). The management plan shall be developed with full public participation and shall describe the appropriate uses and management of the conservation area consistent with the provisions of the Act. The plan may incorporate appropriate decisions contained in any current management or activity plan for the area and information developed in previous studies of the lands within or adjacent to the conservation area."

4.3 Planning Criteria

This section is split into two categories of criteria: (1) laws and regulations and (2) policy statements dealing with the planning criteria. The planning criteria were developed using information contained in the Act that established the NCA, relevant sections of existing BLM land use plans, available data, public input obtained during the scoping period, and input from BLM personnel. These preliminary planning criteria are subject to modification as needed throughout the planning process.

4.3.1 Laws and Regulations

- Clark County Conservation of Public Land and Natural Resources Act of 2002.
  Per Title IV of the Clark County Act, the management plan will—
  - Be completed by November 6, 2005.
  - Be developed in consultation with the State of Nevada, the City of Henderson, Clark County, and any other interested persons.
  - Describe the appropriate uses and management of the Sloan Canyon NCA.
  - Authorize the use of motorized vehicles in the NCA—
    - For installing, repairing, maintaining, and reconstructing water development projects, including guzzlers, that would enhance the NCA by promoting healthy, viable, and more naturally distributed wildlife populations.
    - Subject to any limitations that are not more restrictive than the limitations on such uses authorized in wilderness areas under Section 208.
      - Except as needed for administrative purposes or to respond to an emergency, the use of motorized vehicles in the NCA shall be permitted only on roads and trails designated for the use of motorized vehicles by the management plan.
      - Include or provide recommendations on ways of minimizing the visual impacts of such activities on the NCA.
      - Include a plan for litter cleanup and public lands awareness campaign on public lands in and around the NCA.
      - Include a recommendation on the location of a Right-of-Way (ROW) for a rural road to provide the City of Henderson access to the NCA, in accordance with the application N-65874.
      - Recognize valid existing rights within the NCA and Wilderness and withdraw: all forms of entry and appropriation under public land law; location, entry, and patent under mining laws; and operation of mineral leasing, mineral materials, and geothermal leasing laws.
      - Recognize that the Clark County Act does not affect the jurisdiction of the State of Nevada with respect to fish and wildlife, including hunting, fishing, and trapping in the NCA.
      - Do not create a buffer zone around the NCA or on lands adjacent to the NCA.
      - Convey to the City of Henderson the public ROW requested for public trail purposes under application N-76312 and the public ROW requested for public trail purposes under the application N-65874.

- The Clark County Act (Title IV) authorizes the sale of nearby Federal Parcel Tract A and dictates the use of the proceeds from the sale. The sale is not part of the planning process, however it should be noted that the sale of Tract A occurred in November 2003 for $66.5 million. The proceeds from the sale are available for—

  - Use in the general education program of the State of Nevada (5%).
  - The construction and operation of facilities to support the management of the Sloan Canyon NCA.
  - The construction and repair of trails and roads within the NCA authorized under the management plan.
  - Research on and interpretation of the archaeological and geological resources of the NCA.
  - Conservation and research relating to the NCA.
  - Any other purpose that the Secretary determines to be consistent with the purpose described in Section 602.

- The Clark County Act (Title II) designated the North McCullough Wilderness (14,763 acres) as a component of the National Wilderness Preservation System and makes certain management provisions for all wilderness areas established by the Act. A wilderness management plan will be developed for the area as part of the RMP process.
- In addition to the Clark County Act, the completed RMP will comply with the following applicable laws and regulations:
  - Wilderness Act of 1964, as amended (16 United States Code [U.S.C.] 1131 et seq.)
  - Federal Land Policy and Management Act of 1976 (FLPMA), as amended
  - National Environmental Policy Act
  - Clean Air Act of 1987, as amended (33 U.S.C. 1251)
  - The Endangered Species Act of 1973, as amended (16 U.S.C. 1531, et seq.)
  - National Historic Preservation Act of 1966, as amended (16 U.S.C. 470)
  - Archaeological Resources Protection Act of 1979 (16 U.S.C. 470)
  - American Indian Religious Freedom Act of 1978 (42 U.S.C. 1996)
  - Native American Graves Protection and Repatriation Act of 1990 (25 U.S.C. 3001)
  - Executive Order 11989 regarding Off-Road Vehicles on Public Lands (May 24, 1977)
  - Executive Order 13007 regarding Indian Sacred Sites (61 Fed Reg 26771 [1996])
  - Secretarial Order 3206 (American Indian Tribal Rights, Federal-Tribal Trust Responsibilities, and the Endangered Species Act)
  - The RMP will be consistent with the five objectives of the NLCS:
    1. Above all, commit to conserving, protecting, and restoring special values of the landscape, as directed by BLM's Organic Act (FLPMA).
    2. Build and sustain community relationships to foster collaborative stewardship.
    3. Continue to manage compatible uses and valid existing rights, consistent with the values for which the area was designated.
    4. Provide opportunities for the individual to explore and discover these special areas.
    5. Foster scientific research and public education and acquire a better understanding of how to manage these landscapes.
  - Clark County Multiple Species Habitat Conservation Plan.

4.3.2 Policy Statements

The following policy statements underlie all decisions contained in the RMP:

- Decisions in the RMP will apply to public lands managed by BLM within the NCA and the Wilderness. The litter cleanup element of the plan will also apply to surrounding BLM-managed

federal lands. No other public lands in the vicinity of the NCA will be subject to the decisions contained in the RMP.

- The Sloan Canyon NCA RMP will not address the NCA or Wilderness boundary adjustments or proposals to eliminate or modify the designations in accordance with Title VI of the Clark County Act.
- A collaborative and multijurisdictional approach will be used, where possible, to determine the desired future condition of the NCA and the Wilderness. BLM will work cooperatively with, and may include members from, the State of Nevada, tribal governments, county and municipal governments, and other federal agencies. Public participation will be encouraged throughout the planning process.
- The planning process will involve consultation with Native American tribal governments and will provide strategies for the protection of recognized traditional uses and cultural values.
- Decisions in the RMP will strive to be compatible with existing plans and policies of adjacent local, State, and federal agencies as long as the decisions are in conformance with congressional direction for management of the NCA and Wilderness established by the legislation.
- Where appropriate, existing management decisions contained in previous land use plans, activity plans, and the like may be incorporated into the RMP.
- The RMP will review how valid existing rights are verified within the NCA and Wilderness.
- Planning decisions will include the preservation, conservation, and enhancement of important historic, cultural, archaeological, natural, wilderness, and scientific components of public land resources.
- The RMP will maintain adequate public access for the reasonable use and enjoyment of the area.
- The RMP will would address transportation, route management, and access, and it will identify which routes/roads should remain open to accommodate resource users and uses, including recreationists, protection of resource values, and administrative needs. The plan will also address where additional access may be needed for administrative and recreational uses of BLM-managed lands.
- Because portions of the NCA are located in a nonattainment area for air quality, uses and management decisions that affect the air quality of the NCA may be limited.
- Comprehensive Land Health Standards developed by the BLM Las Vegas Field Office will apply to all activities and uses. Adjustments to current livestock grazing or wildlife forage allocations will be considered in accordance with Rangeland Health Standards and Guides and will be applicable to all alternatives.
- Federal Geographic Data Committee standards and other applicable BLM standards will be followed.
- As part of the planning process, BLM will monitor the progress of the helicopter project near the NCA and coordinate with Clark County on any issues that should be monitored or addressed in the RMP.

5.0 STANDARD OPERATION PROCEDURES

This section contains a list of standard operating procedures that provide guidance for activities related to the management of the Sloan Canyon National Conservation Area (NCA). This list is not comprehensive but rather represents the types of procedures with which the Bureau of Land Management (BLM) would comply.

Wilderness

Wildlife in the North McCullough Wilderness would be managed in accordance with the Memorandum of Agreement (MOU) between BLM and the Nevada Department of Wildlife ([BLM 2003c] MOU 6300-NV930-0402) entitled, "Wildlife Management in Nevada BLM Wilderness Areas," or other relevant laws, regulations, policies, or agreements.

BLM would follow a Minimum Requirement Decision Guide to determine whether management actions have the potential to negatively affect the resources and aesthetic values of the Wilderness.

Cultural Resources

In areas that might be affected by Resource Management Plan actions, cultural resources would be identified and their eligibility for the National Register of Historic Places would be determined through the Nevada State Historic Preservation Office protocol. BLM will develop and carry out an appropriate treatment plan for resources determined eligible and that might be affected.

Lands and Realty

The Black Mountain communication sites would be managed in accordance with the *Black Mountain Communication Site Plan* (BLM 1999) or current management direction.

Vegetation Management

- Vegetation in the Sloan Canyon NCA would be managed to meet the requirements of the *Clark County Multispecies Habitat Conservation Plan* (CCDCP 2000).
- BLM would follow Nevada BLM's "Partners Against Weeds—An Action Plan for the BLM" (BLM 1996) and general restoration plan for Las Vegas Field Office. Noxious and invasive weeds would be managed under integrated weed management principals.
- BLM would manage the NCA in accordance with the Mojave-Southern Great Basin Resource Advisory Council Standards and Guidelines for Rangeland Health.

Wildlife Management

- Discretionary activities proposed in bighorn sheep habitat would be evaluated on a case-by-case basis. Authorization would be considered if the proposed actions are consistent with the goals and objectives of the *Rangewide Plan for Managing Bighorn Sheep Habitat on Public Lands* (BLM 1998c) and other applicable agreements, plans, laws, and regulations.
- Wildlife management would be coordinated with appropriate federal, State, and local agencies, as well as special interest groups (e.g., Partners in Flight).

Wildland Fire Management

Wildland fire management would be implemented for the Sloan Canyon Fire Management Unit based on objectives included in the *BLM Las Vegas Field Office Fire Management Activity Plan* (BLM 1998b) and Fire Management Plan (BLM 2004b).

Water Resources and Quality

Contributions would be minimized from both point and nonpoint sources of pollution resulting from public land management actions, in accordance with the best management practices identified by the State of Nevada.

Air Quality

- Conformity determinations would be included where applicable in activity plans and associated environmental documentation.
- Air quality dust control permits would be obtained from the Clark County Department of Air Quality and Environmental Management prior to the approval of any activity within the NCA.

Abandoned Mines

- BLM would coordinate with the Nevada Division of Mines to ensure that the entire NCA and appropriate surrounding area have been surveyed for abandoned mines.
- If additional abandoned mines are found within the NCA, BLM would either remediate per the *Final Programmatic Environmental Assessment for Remediation of Abandoned Mine Safety Hazards*, or, if necessary, prepare site-specific environmental assessment.

APPENDIX B

Recreation Monitoring Plan

RECREATION MONITORING PLAN

The Recreation Monitoring Plan contains the monitoring approach that will be used at the Sloan Canyon National Conservation Area (NCA) to ensure that management actions meet the recreation management goals and objectives described in the Proposed Resource Management Plan and Final Environmental Impacts Statement (PRMP/FEIS). This Recreation Monitoring Plan is organized by resource area, followed by resource goals, objectives, and actions, and finally a description of the monitoring methods.

1.0 RESOURCE MONITORING

Monitoring is the process of collecting information to evaluate the effects of selected management actions, public actions and interests, and impacts in relation to the RMP goals and objectives and to ensure compliance with applicable laws, regulations, and policy. Data describing changing trends over time are collected and used to determine whether desired outcomes are being met.

Because the NCA and the North McCullough Wilderness were relatively recently designated, the Bureau of Land Management (BLM) Las Vegas Field Office has just begun to focus management attention on the area. Consequently only limited specific resource and visitor use baseline data exist. In addition, visitor use is expected to change drastically as urban growth surrounds the NCA, trails and facilities are developed, and the NCA transitions and management decisions contained in the RMP are implemented.

This Recreation Monitoring Plan is designed to be outcome-based, technically feasible, affordable, and operationally attainable. Three types of monitoring will occur to determine the current status of the NCA baseline and to measure changes to it:

- **Baseline Monitoring**—What are the current baseline conditions?
- **Implementation Monitoring**—Were the decisions and actions developed during planning implemented?
- **Effectiveness Monitoring**—Did the implemented action result in changes to resource condition, visitor numbers, activity types, and duration of stay? Did changes in the indicators exceed thresholds established for achieving the objectives?

To monitor change within the NCA, BLM staff would identify and track indicators, which are specific elements of the NCA setting that change in response to human activities. Indicators provide quantitative documentation on how much conditions have changed, serve as tools for examining trends and highlighting problems, and can act as an early warning to predict future conditions. When compared with standards that describe the acceptable limits of change, indicators can signal the need for corrective action, evaluate the effectiveness of management actions, and help determine whether desired conditions are being achieved. To accommodate the need for management flexibility as this development occurs, a baseline would be established and used to determine appropriate indicators and limits of acceptable change. The indicators would be monitored frequently as the NCA facilities are developed. As visitation and recreation opportunities stabilize, the monitoring frequency would become more static.

2.0 RECREATION MONITORING

Two different aspects would be considered during recreation monitoring: the social setting and the physical setting. The number of people and the number and type of encounters that take place in defined settings characterize the social setting. The physical setting includes the physical landscape and environment, ranging from primitive areas where the landscape is remote, pristine, and shows minimal evidence of human presence, to more developed areas that are manipulated to provide a desired setting and include an abundance of facilities to accommodate heavy recreational use. The first objective and its associated goals and actions refer to the social setting. The second objective refers to the physical setting.

Goal: Provide recreation opportunities within the NCA, including the North McCullough Wilderness, consistent with the Sloan Canyon NCA Act (Title VI of the Clark County Conservation of Public Land and Natural Resources Act of 2002) and Clark County Act, Title II ("Wilderness Areas").

Objective 1

Provide an array of outdoor recreation opportunities and experiences within the NCA.

Management Actions Examples

Interpretive opportunities designed to enhance recreation experiences through information on the NCA's unique cultural and natural resources would be provided to visitors.

A trail system would be developed to accommodate multiple trail uses in appropriate areas of the NCA and would be appropriately managed near wildlife water developments. Trail designs that avoid sensitive natural and cultural resource areas and Special Status Plant communities would be emphasized. Site-specific resource conditions would be considered when selecting and designing trails and adding new trails, including avoiding areas of sensitive wildlife habitat. Trails outside the North McCullough Wilderness would be evaluated to determine if they should be developed as an Americans with Disabilities Act of 1990 trails. Additional trails could be added to the trail system when a new trail would not cause substantial impacts to sensitive cultural or natural resources and would improve visitor experiences. Unauthorized constructed and social trails would be evaluated to determine whether to close and restore, or adopt them into the trail system. Permits for overnight parking to support recreation activities would be available on a case-by-case basis.

Monitoring

The formal method of monitoring the social setting would be through visitor satisfaction surveys. These comprehensive surveys would include information concerning visitor demographics, preferred activities, recreation experiences and benefits, and setting preferences, as well as evaluation of BLM management, facilities, and services. Visitor surveys would be conducted for at least 1.5 years following the completion of the RMP to establish baseline data for the seasonal variation in visitation, and regularly thereafter as the plan is implemented and visitation increases.

Monitoring would also be performed on an informal basis by BLM field personnel, volunteers, and through public participation. BLM field staff and volunteers will have training to gather data through visitor contacts and observation of social conditions. Comments from the public in the form of letters, telephone calls, e-mails, public meetings, feedback from special interest groups, or office visits will be collected and reviewed. When informal monitoring begins to indicate that the desired condition of the social setting is not being met, the next formal visitor survey should be implemented as soon as possible.

Objective 2

Manage recreation uses so that recreation-related disturbances are minimized.

Management Action Examples

Special recreation permits (SRP) could be issued consistent with the purposes of the NCA and North McCullough Wilderness to control visitor use, protect recreational and natural resources, provide for the health and safety of visitors, and provide a fair return to the Government for the opportunity to make a profit for the commercial recreational use of public lands. Competitive or vending SRPs could be issued within the NCA but not in the North McCullough Wilderness. Outfitters and guides wanting to guide hunts and conduct interpretive programs within the NCA would be required to obtain a commercial SRP from the NCA Manager to minimize potential conflicts among recreation uses. Outside the Petroglyph Management Area, organized groups would be required to obtain an SRP. Ongoing evaluations of the number, appropriateness, and impacts of commercial and competitive SRPs would be conducted, and limits could be placed on the issuance of commercial and competitive SRPs based on the evaluation and consistency with the purposes of the NCA. The NCA would be managed, in part, through Management Emphasis Areas zones.

Hiking and equestrian use would be allowed in designated areas. In trail areas, cross-country use could occur until BLM establishes and constructs trails. In open areas, cross-country travel is allowed. Mountain biking would be allowed only on a system of proposed trails and vehicle roads; cross-country biking is prohibited. Off-highway vehicles use would be prohibited throughout the NCA.

Primitive and dispersed camping would not be allowed in the Petroglyph Management Area or its north access, but it would be allowed in designated areas in other portions of the NCA. Campfires would be allowed at camping sites in fire pans or using fire blankets. No natural fuels in the NCA can be used for campfires, and all fuels must be packed in and out of the NCA. Further, all fire waste products must be packed out.

No forms of rock climbing would be allowed within the Petroglyph Management Area and its northern access, but bouldering and traditional rock climbing could be allowed outside designated sensitive resource areas in the remainder of the NCA. All forms of recreational target shooting, except permitted hunting, would be prohibited. Dogs, on leash, are allowed in the designated areas and are prohibited in the remainder of the NCA. Dog feces must immediately be picked up and packed out. Rockhounding and geocaching would be prohibited throughout the NCA.

Monitoring

Indicators used for monitoring recreation would include visitor use, evidence of human and dog waste, vandalism, areas of impact, and SRP stipulations. Methods used for monitoring would include visitor surveys for numbers of encounters, trail counters, trailhead registers, ongoing management observations, recreation site and facility measurements, and permit evaluation and compliance. The frequency of monitoring would vary as development and visitation increase.

A team comprising appropriate BLM resource specialists would conduct formal monitoring for the physical setting. The resource specialists would determine the frequency of monitoring, but during the first phase, a comprehensive assessment would be conducted for at least 1.5 years following the completion of the RMP to establish baseline data for the seasonal variation in visitation.

Volunteers and BLM field personnel would conduct informal monitoring on a routine basis. Monitoring would occur by performing a visual assessment during normal field operations and implementing a photo monitoring program. If informal monitoring results in resource concerns, an appropriate resource specialist would be notified.

APPENDIX C

North McCullough Wilderness Management Plan

U.S. Department of the Interior

Bureau of Land Management

Las Vegas Field Office
Las Vegas, Nevada

September 2005

NORTH MCCULLOUGH WILDERNESS MANAGEMENT PLAN

Sloan Canyon National Conservation Area

TABLE OF CONTENTS

1.0 INTRODUCTION 1
1.1 Scope of the Wilderness Management Plan *1*
1.2 Wilderness Overview *1*
1.3 Wilderness Characteristics *6*
2.0 NATIONAL WILDERNESS MANAGEMENT GOALS 7
2.1 Wilderness Specific Issues *7*
2.2 Issues Not Addressed in this Plan *8*
2.3 Wilderness Management Objectives *9*
2.4 Current Situation and Assumptions *9*
3.0 MANAGEMENT STRATEGY 11
3.1 The Petroglyph Management Area and Access *12*
3.2 Remainder of the North McCullough Wilderness *12*
4.0 WILDERNESS MANAGEMENT ACTIONS 15
4.1 Trails Management *15*
4.1.1 Construction and/or Designation of Approximately 3 Miles of Trail 15
4.1.2 Social Trail Management 17
4.2 Wilderness Visitation *17*
4.3 Disturbance Rehabilitation *18*
4.4 Special Recreation Permits *22*
4.5 Wildlife Management *22*
4.6 Wildland Fire Management *23*
4.6.1 Fire Suppression 23
4.6.2 Fire Rehabilitation 23
4.7 Use of Signs *24*
4.8 Interpretation *24*
4.9 Collection of Vegetation *24*
4.10 Non-native Vegetation Prevention and Control *25*
4.11 Nighttime Use *25*
4.12 Livestock Grazing *26*
4.13 Equestrian and Pack Animal Use *27*
4.14 Other Recreational Use *27*
4.15 Management of Dogs *27*
4.16 Aircraft Overflights *29*
5.0 MONITORING 29
5.1 Plan Evaluation *32*
5.2 Plan Implementation Sequence *32*
5.2.1 Ongoing Activities 32
5.2.2 Special Projects (in order of priority) 33
5.2.3 Changing Conditions 33
5.2.4 Potential Future Proposals 33
6.0 LIST OF PREPARERS AND CONTRIBUTORS 34
6.1 BLM List of Preparers *34*
6.2 BLM List of Contributors *34*
6.3 Booz Allen Hamilton List of Preparers *34*
REFERENCES 35

LIST OF FIGURES

Figure C.1. North McCullough Wilderness 2
Figure C.2. North McCullough Wilderness - Location Map 4
Figure C.3. Petroglyph Management Area 13
Figure C.4. North McCullough Wilderness Hiking 14
Figure C.5. Proposed Hiking Trails for the Petroglyph Management Area 16
Figure C.6. Disturbances and Developments within the North McCullough Wilderness 21

Figure C.7. Camping 26
Figure C.8. Equestrian and Pack Animal Use 28

LIST OF TABLE

Table C.1. North McCullough Wilderness Disturbances and Developments 19

NORTH MCCULLOUGH WILDERNESS MANAGEMENT PLAN

1.0 INTRODUCTION

1.1 Scope of the Wilderness Management Plan

Developed in conjunction with the Sloan Canyon National Conservation Area (NCA) planning process, this North McCullough Wilderness Management Plan (WMP) provides specific direction for the management of the North McCullough Wilderness (Wilderness) over the next 10 years. It (1) describes the Wilderness including existing conditions, features, and uses; (2) identifies the goals and objectives in the management of the Wilderness; (3) identifies the issues as developed by Bureau of Land Management (BLM) specialists, other agencies, and the public during scoping for the Sloan Canyon NCA Resource Management Plan (RMP) and Environmental Impact Statement (EIS); (4) identifies assumptions concerning changes expected during the life of the WMP; (5) presents a management strategy to maintain or improve the natural character of the Wilderness; (6) provides specific direction for the management of the various resources and activities within the Wilderness to ensure the preservation of the area's wilderness character, (7) establishes a monitoring strategy that tracks the outcome of activities undertaken within the Wilderness; and (8) identifies a sequence of activities necessary for the implementation of this WMP.

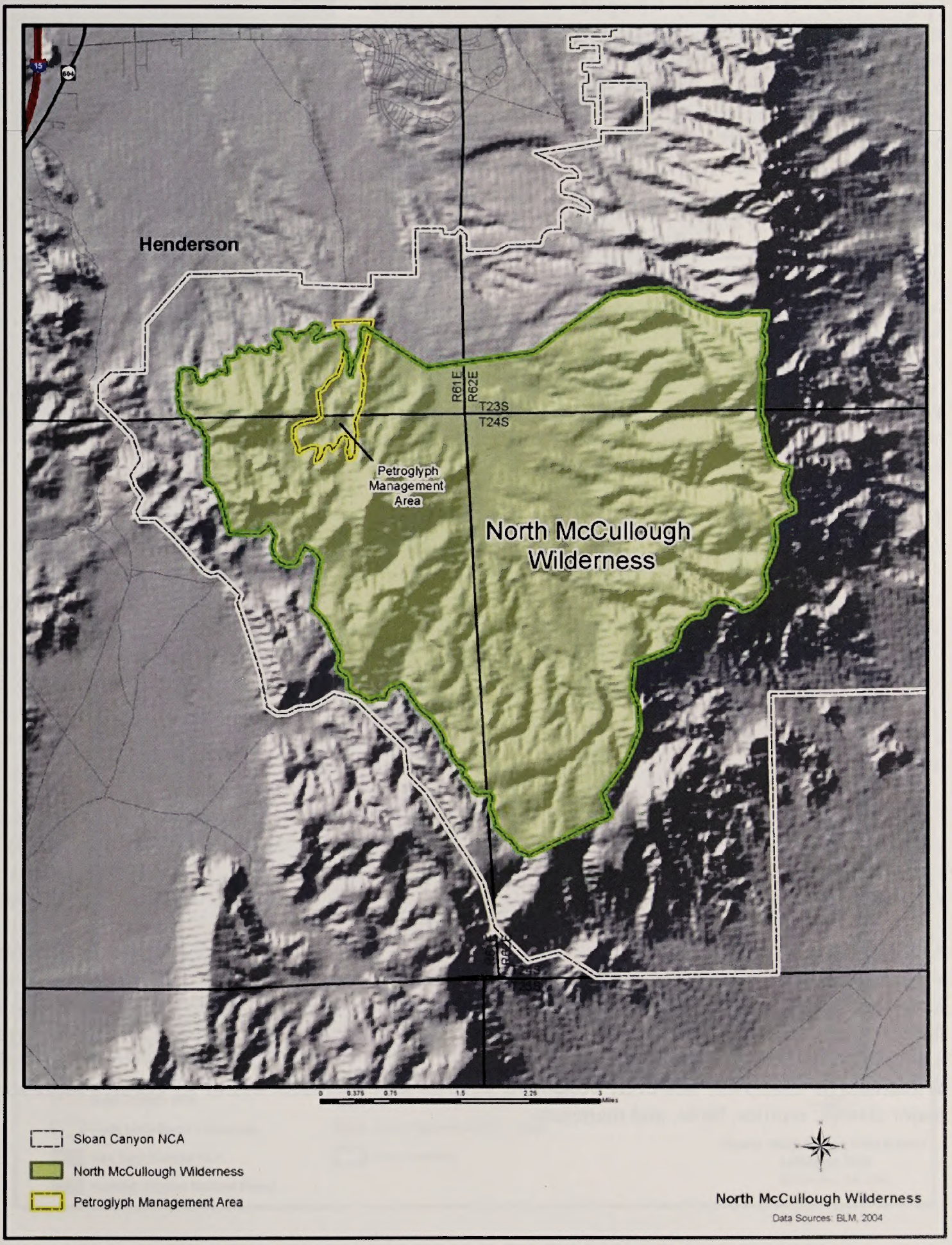
In addition to the proposed management of the North McCullough Wilderness presented in this plan, the Sloan Canyon NCA Draft RMP/EIS provided a full description and analyses for four other alternatives that were considered but not selected as part of the proposed plan. The Record of Decision for the Sloan Canyon NCA RMP/Final EIS (FEIS) will serve as the decision document for this plan.

This WMP is consistent with the Clark County Conservation of Public Lands and Natural Resources Act of 2002 (the Clark County Act); the Wilderness Act of 1964; Grazing Guidelines (House Report No. 101-405, Appendix A); and Wildlife Management Guidelines (House Report No. 101-405, Appendix B). It is also consistent with Code of Federal Regulation (CFR) 43 Part 6300; BLM Manuals 8560 (Management of Designated Wilderness Areas) and 8561 (Wilderness Management Plans); BLM Handbook H-8560-1 (Management of Designated Wilderness Areas); *Proposed Las Vegas Resource Management Plan and Final Environmental Impact Statement* (BLM 1998a); Memorandum of Understanding (MOU) between the BLM and the Nevada Department of Wildlife (NDOW) (BLM MOU 6300-NV930-0402, Supplement 9); and the *Clark County Multiple Species Habitat Conservation Plan* (CCDCP 2000).

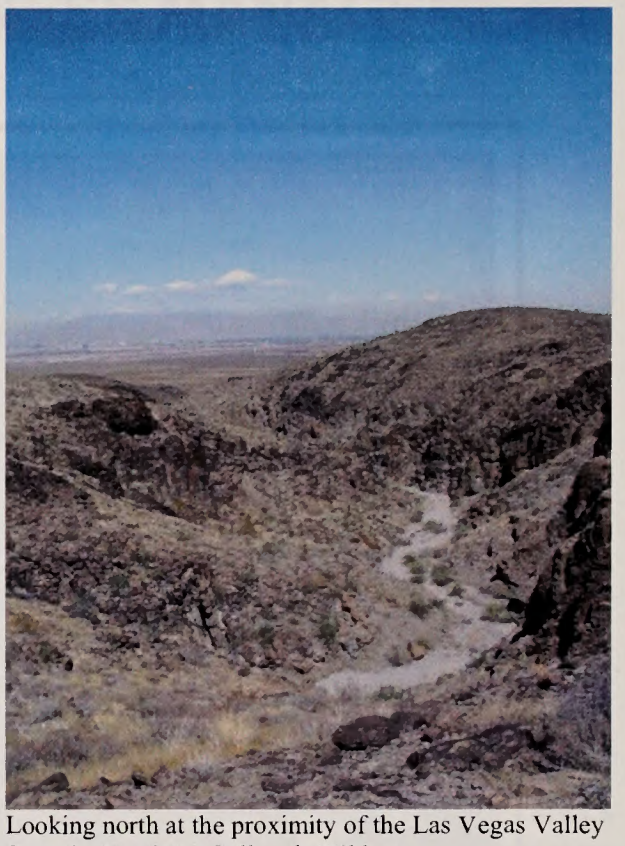
1.2 Wilderness Overview

On November 6, 2002, the Clark County Act established the Sloan Canyon NCA. The Clark County Act also designated the North McCullough Wilderness (Figure C.1), which totals 14,765 acres and lies entirely within the southwest portion of the NCA. Prior to designation, most of the current Wilderness was part of the former North McCullough Wilderness Study Area (WSA).

Figure C.1. North McCullough Wilderness



The North McCullough Wilderness is located to the south and immediately adjacent to the Las Vegas Valley in the north half of the north-south trending McCullough Range (Figure C.2). It is roughly triangular in shape and spans approximately 6 miles at its longest and widest points. The eastern boundary follows the crest of the escarpment, the base of which forms the eastern edge of the NCA. The volcanic features that rim Hidden Valley define the western boundary. The northern boundary crosses Sutor Hills, Sloan Canyon and a large basin that contains the Sloan Canyon Petroglyph Site and other prominent features such as Sutor and Hanna Peaks. The massive, rounded to flat-topped volcanic peaks have a gradual western slope. The Wilderness interior is comprised of a broad two-mile wide central valley separating the main ridgeline to the east, from the rugged Sutor Hills. Elevations range from 2,850 feet at the lower end of the central valley to 5,058 feet at the ridgeline of the McCullough Range on the east side of the Wilderness. The North McCullough Wilderness is volcanic in origin and examples of lava flows, ash falls and glassy zones are clearly displayed in the Wilderness.



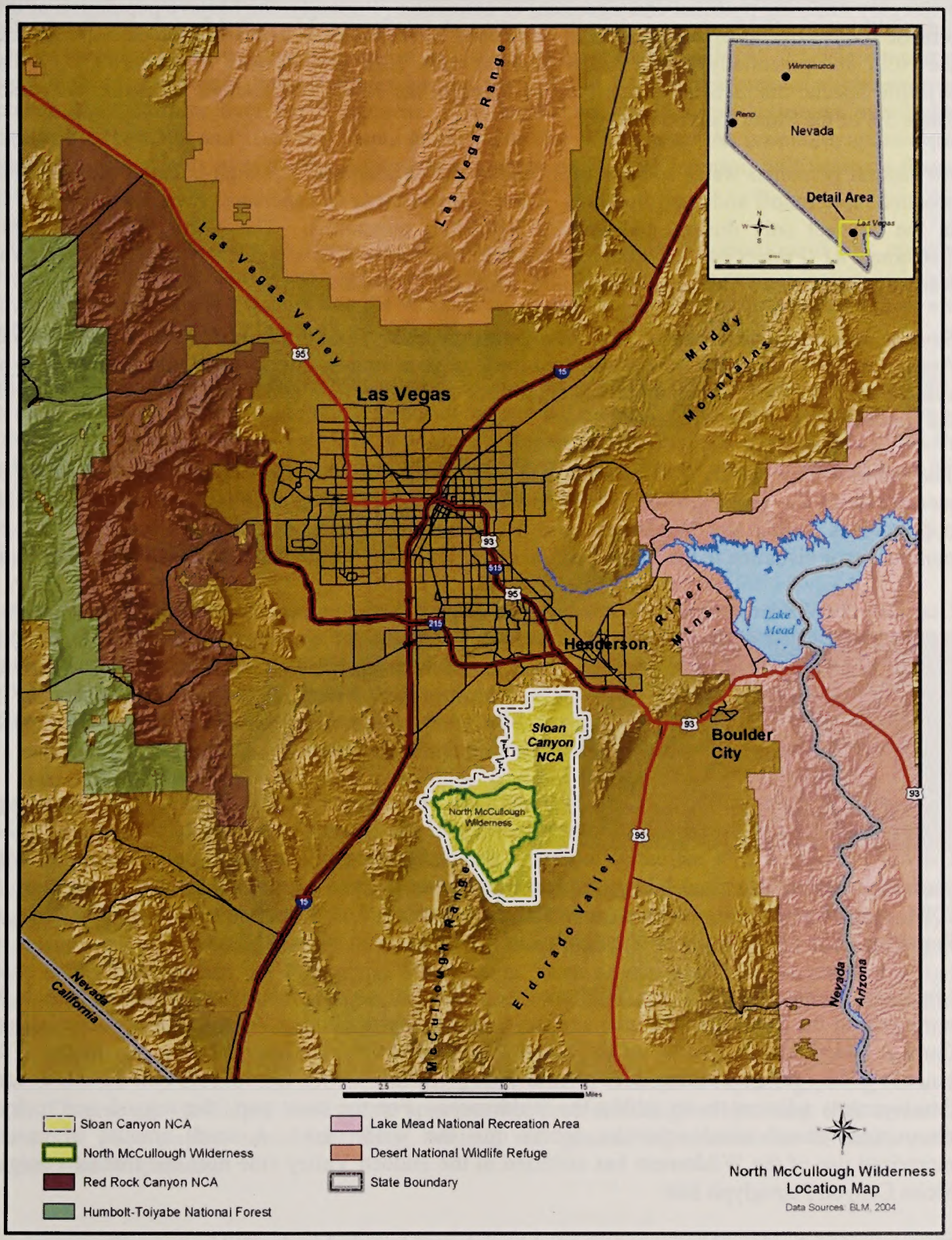
Looking north at the proximity of the Las Vegas Valley from the North McCullough Wilderness.

The North McCullough Wilderness consists of the Mojave Desert scrub vegetation community. This community is primarily composed of low, widely spaced shrubs, including the creosote bush (*Larrea tridentata*) and the white bursage (*Ambrosia dumosa*). Other affiliated community shrubs include ephedra (*Ephedra* spp.), brittlebrush (*Encleia virginensis*), burro bush (*Hymenoclea salsola*), bebbia (*Bebbia juncea*), and desert saltbrush (*Atriplex polycarpa*). Characteristic species associated with the Mojave Desert include Mojave yucca (*Yucca schidigera*), teddybear cholla (*Opuntia bigeloviai*), and hedgehog cacti (*Echinoceres* spp.). Black grama grass (*Bouteloua eriopoda)*, not known to occur elsewhere in Nevada, is found in the Wilderness. Short-lived annual and perennial wild flowers appear in late March, April, and May, and when prompted by winter rains.

Four vegetation associations are represented within the Sloan Canyon NCA and the Wilderness: (1) volcanic basalt slope association, (2) moderate creosote (greater than 30 percent cover), (3) sparse creosote/bursage mix, and (4) desert wash association (BLM 2004a). Detailed descriptions of the vegetation associations are included in Section 3.12 and Figure 3.10 of the Sloan Canyon RMP/EIS.

Although only one vegetation community, Mojave Desert scrub, is represented in the Wilderness, it supports a variety of wildlife species including desert bighorn sheep (*Ovis canadensis nelsoni*), Gila monster (*Heloderma suspectum cinctum*), and chuckwalla (*Sauromalus obesus*). The primary natural factors that influence populations and distribution of wildlife are water availability, vegetation, topography, and weather patterns. To date, the actual number of wildlife species occurring within the Wilderness is unknown; however, vertebrate wildlife species found within its borders represent three major classes: reptiles, birds, and mammals.

Figure C.2. North McCullough Wilderness - Location Map



Wildlife Special Status Species include species federally listed as threatened and endangered, proposed for listing, or candidates for listing under the Endangered Species Act. They also include species designated by each BLM State Director as sensitive and those listed, or proposed for listing, by a State in a category implying potential endangerment or extinction. Presently, the Mojave population of the desert tortoise (*Gopherus agassizii*) is listed as threatened and is the only federally protected species located in the NCA and potentially within the Wilderness (U.S. Fish and Wildlife Service 2003). A listing of Wildlife Special Status Species that may be found in the North McCullough Wilderness is presented in Table 3.6 of the Sloan Canyon RMP/EIS.

No natural perennial water sources exist within the Wilderness, but high-intensity thunderstorms can produce rapid runoff and flash flooding. Sloan Canyon hosts an ephemeral stream where water is found in the channel only during, and immediately after, rainstorms. The North McCullough Slickrock Catchment #1 (Project #4916) is the only wildlife water development (guzzler) within the Wilderness and was installed before Wilderness designation, while the area was a WSA.

Several manmade disturbances and developments exist within the North McCullough Wilderness. Approximately 3.75 miles of worn-in two-track vehicle routes, due to prior unauthorized off-highway vehicle (OHV) travel, can be found. A small rock and motor dam and a dug well are also present within the central valley of the Wilderness.

The currently low levels of recreation use within the North McCullough Wilderness is expected to increase with the rapid growth rate of the Las Vegas Valley and as information about recreational opportunities within the Wilderness and NCA becomes more available. Except for some recent monitoring of visitation to the Sloan Canyon Petroglyph Site, visitor use has not been closely monitored.

Generally the Wilderness receives low levels of dispersed recreational use primarily because of its rugged terrain and limited vehicle access to its boundary. There are opportunities for wildlife watching and permitted hunting in the Wilderness. Hiking and horseback riding opportunities abound within the Wilderness, with destinations frequently including Sutor and Hanna Peaks, North McCullough escarpment, and Sloan Canyon Petroglyph Site. Although opportunities for camping are possible, this form of recreation is not frequently pursued within the Wilderness.

The majority of recreationists use the Wilderness when they visit the Sloan Canyon Petroglyph Site, which is usually accessed from the north by way of the Sloan Canyon wash. Visitation to the Sloan Canyon Petroglyph Site increased following the designation of the NCA and Wilderness, with large parties, including organized hiking groups, frequenting the site. Based on limited monitoring in 2003-2004, preliminary visitor estimates indicate approximately 5 to 10 persons accessing the Sloan Canyon Petroglyph Site per weekday, with slightly higher visitation on weekend days.

Motorized access leading to the Wilderness is limited to several vehicle routes that approach from the northwest in the Sloan Canyon area and the southwest from Hidden Valley. These routes access Sloan Canyon and the wash leading to the Sloan Canyon Petroglyph Site. Other access to the Wilderness boundary is by off-trail hiking or horseback riding as there are no formal trails, trailheads, or associated developments adjacent to or within the Wilderness. For the most part, the rugged and rocky terrain discourages unauthorized vehicular access into the Wilderness. A small amount of unauthorized motorized use of the Wilderness has occurred at the Hidden Valley side near the southern access to the Sloan Canyon Petroglyph Site.

No areas of high mineral resource potential have been identified in the Wilderness. There are no mineral leases and only portions of three current, but undeveloped, claims intruding slightly into the northwest portion of the North McCullough Wilderness. The validity of the claims have not been determined.

Low-level aircraft flights occur over the Wilderness. The highest percentage of low-level overflights is from scenic tours originating from local area airports, although private flights from Henderson Executive Airport, located several miles from the northern Wilderness boundary, also contribute. In addition, commercial flights from McCarran International Airport pass directly over the Wilderness, although they tend to be localized to the western edge and at an altitude of more than 4,000 feet. Legislation currently before Congress proposes a future heliport located west of the NCA and mandates a two-mile wide helicopter flight corridor over the Wilderness. The legislation would allow helicopter overflights at elevations between 500 and 1000 feet above ground, over the Wilderness. As proposed, approximately 90 round-trip overflights a day, equating to a flight about every four minutes, will emanate from the heliport.

The Hidden Valley Allotment is currently open to livestock grazing. A portion of this ephemeral allotment lies within the North McCullough Wilderness but, because of the rugged terrain and lack of water, cattle typically do not wander into the Wilderness. Within this portion of the allotment there are no developments associated with livestock grazing.

Wildfires in the vicinity of the North McCullough Wilderness generally occur in the summer but are not uncommon in the spring, and occasionally occur in the late fall months. Within the Wilderness, there are few recent wildfire occurrences. This lack of wildfire is due to the sparseness and low stature of the shrub vegetation. Even in years with an ephemeral buildup of non-native annual grasses, the rockiness of the terrain and discontinuity of the fuel bed minimizes the risk of wildfire spread.

1.3 Wilderness Characteristics

The quality of the wilderness values were a key consideration in designating the North McCullough Wilderness. The Wilderness generally appears natural, but there are a few signs (e.g., disturbances, developments) of human use introduced into the environment prior to the area's designation. These include two-track vehicle routes, rock and motor dam, dug well, and a wildlife water development (guzzler).

Despite its proximity to a largely populated urban area, the portion of the Wilderness outside the Petroglyph Management Area possesses good solitude opportunities due to the historically low levels of visitor use; lack of trails and other developments; and topography that provide some natural screening from the adjacent urban area or other wilderness users. A lesser degree of solitude is available within the Petroglyph Management Area as this area has the heaviest visitation within the Wilderness. The primeval character of the entire Wilderness is essentially intact except for the occurrence of some introduced plants, primarily annual grasses.

Opportunities for a primitive and unconfined form of recreation close to a rapidly growing urban area abound. Diverse non-developed recreational opportunities such as hiking/backpacking, rock scrambling, nature study, photography, horseback riding, hunting, and general exploration can be easily pursued throughout the Wilderness.

2.0 NATIONAL WILDERNESS MANAGEMENT GOALS

The following goals direct the objectives, policy, management strategies and actions developed in this plan.

- To provide for the long-term protection and preservation of the area's wilderness character under a principle of non-degradation. The area's natural condition, opportunities for solitude, opportunities for primitive and unconfined types of recreation and any ecological, geological, or other features of scientific, educational, scenic, or historical value present will be managed so that they will remain unimpaired.

- To manage the wilderness area for the use and enjoyment of visitors in a manner that will leave the area unimpaired for future use and enjoyment as wilderness. The wilderness resource will be dominant in all management decisions where a choice must be made between preservation of wilderness character and visitor use.

- To manage the area using the minimum tool, equipment, or structure necessary to successfully, safely, and economically accomplish the objective. The chosen tool, equipment, or structure should be the one that least degrades wilderness values temporarily or permanently. Management will seek to preserve spontaneity of use and as much freedom from regulations as possible.

- To manage nonconforming but accepted uses permitted by the Wilderness Act and subsequent laws in a manner that will prevent unnecessary or undue degradation of the area's wilderness character. Nonconforming uses are the exception rather than the rule; therefore, emphasis is placed on maintaining wilderness character.

2.1 Wilderness Specific Issues

Issues to be addressed in this plan were identified by BLM specialists, other agencies, and the public during the scoping period for the Sloan Canyon NCA RMP/EIS. Most issues identified by the public also included a preference for management. Although the preferences were used in developing a range of alternatives, the following is only a listing of the issues:

- How will the appropriate level of use for the North McCullough Wilderness be determined?
- What types of ongoing visitor use monitoring will be addressed in the plan?
- How will the appropriate level of signage for the Wilderness be determined?
- How will seasons of use for the Wilderness be addressed?
- How will a Limits of Acceptable Change (LAC) process be incorporated into the development of the North McCullough WMP?
- How will visitor information collection systems be applied to Wilderness and used to manage Wilderness recreation?
- How will rehabilitation of ways within the Wilderness be addressed?
- How would interpretation attract visitation to the Wilderness? How would increased visitation lead to inappropriate permanent human presence and uses that impact wilderness values?
- How will trail use and development in Wilderness be addressed?

- How will the establishment of new rock climbing routes be addressed?
- How will wildlife habitat in the Wilderness be managed?
- How will the proximity of urban areas to the NCA and Wilderness be addressed to ensure appropriate access and protection of resources?

2.2 Issues Not Addressed in this Plan

Several issues identified during scoping are already addressed in other planning documents, solved through policy or administrative action, or are considered to be outside the scope of this WMP. Presented below is a list of the issues, along with a statement as to why each is not addressed in this plan.

- How will aerial tours of the area be addressed for the Wilderness?

  The BLM does not have jurisdiction over the airspace above the North McCullough Wilderness. The use of aircraft is only regulated by the BLM if they land or if anything or anyone is picked up or dropped by means of an aircraft.

- How will the WMP be embedded in the overall management plan to ensure that it is recognizable and consistent with plans for other wilderness areas in the region?

  The North McCullough WMP has been incorporated into the Sloan Canyon NCA Proposed (PRMP)/FEIS as an appendix. It has been developed in accordance with BLM Manual 8561, Wilderness Management Plans, which provided policy and guidance for its preparation. National Environmental Policy Act requirements have been satisfied through the PRMP and Draft RMP/EIS that provide a full description and analyses for the preferred alternative as well as three other alternatives that were considered but not selected. The Record of Decision for the Sloan Canyon NCA PRMP serves as the decision document for this plan.

- How will the coordination of volunteer groups be incorporated into Wilderness management?

  The BLM has an established volunteer program which includes utilizing volunteers for Wilderness monitoring and projects. Volunteers under BLM direction may assist in implementing the plan however, the decision to do so is not required through this WMP.

- How will the appropriate herd size for bighorn sheep in the Wilderness be determined in the plan?

  The management of wildlife within the State of Nevada is the responsibility of the NDOW. BLM is responsible for management of wildlife habitat on BLM administered lands. Appropriate herd size for the North McCullough Wilderness and the McCullough Mountains was published in the *Rangewide Plan for Managing Habitat of Desert Bighorn Sheep on Public Lands* (BLM 1998b).

  NDOW and the BLM continue to cooperatively manage the population and its habitat in accordance with this document and other planning documents including habitat management plans.

- How will trespass in the Wilderness be addressed?

  Actions designed to help in the prevention of unauthorized activities (trespass), as well as, the rehabilitation measures to be undertaken in the event of an unauthorized activity are presented in this WMP. Enforcement of wilderness regulations and detection of violators, however, is not addressed in this plan as they are provided for in existing law, regulation and policy including penalties provided for at 43 CFR 6302.30.

- How will recreation use of the NCA be managed to balance the spectrum of recreation intensity between the Wilderness and NCA, outside the Wilderness?

  The WMP addresses several actions designed to prevent recreational activities allowed within the NCA from impacting on the North McCullough Wilderness, where those same activities are not allowed. The actual management of recreational use within the NCA, and how its intensity will be balanced between the NCA and the Wilderness is addressed within the Sloan Canyon RMP.

- How will BLM Law Enforcement and Wilderness Rangers be used to manage wilderness?

  The hiring and use of both Law Enforcement and Wilderness Rangers (non-law enforcement) is an administrative action not requiring a decision through this WMP. Wilderness Rangers are the first line contact with wilderness and backcountry users; and are responsible for monitoring (see Section 5.0) for a variety of potential unauthorized incursions into the Wilderness. All regulations will be enforced by BLM Law Enforcement Agents and Law Enforcement Rangers. Violators will be detected through periodic patrol and investigative follow-up to reports by the public, BLM and other agency employees. Any prohibited acts defined at 43 CFR 6302.20, outside of those authorized in this plan, are subject to the penalties provided for at 43 CFR 6302.30.

2.3 Wilderness Management Objectives

Objectives, under the National Wilderness Management Goals presented earlier (Section 2.0), were developed to address the management of, and the issues identified for, the North McCullough Wilderness. These objectives are not listed in any order of priority.

- Maintain or improve solitude within the Wilderness.
- Maintain or improve naturalness in the Wilderness to achieve a standard of no known surface disturbances and stable or decreasing non-native plant populations.
- Provide a diversity of opportunities for primitive and unconfined recreation.

2.4 Current Situation and Assumptions

In order to appropriately develop the various management actions necessary to meet the plan objectives, the existing situation and anticipated changes that can reasonably be expected to take place over the life of this plan are considered first. Inventory, monitoring, and research will be an important component to meeting the objectives of the plan.

It is anticipated that current daily visitation to the North McCullough Wilderness would increase in the area near Petroglyph Management Area to numbers requiring guided tours and permitted access. This area has historically witnessed a majority of the visitation to the area now designated as Wilderness. Continuation of this pattern of use is anticipated to continue in the future. For the remainder of the Wilderness, it is anticipated that the current sporadic visitation would moderately increase to daily visitation primarily on weekends during the spring and fall. Lesser visitation is anticipated during the extremes of the winter and particularly summer months. Management of the various visitor uses may be required in order to preserve the future use and enjoyment of the area.

- The population and associated development in the Las Vegas Valley will continue to grow, particularly in the area immediately adjacent to the NCA and the northern and western boundary

of the Wilderness. The resultant population within a one-mile distance is anticipated to focus increased attention on the Wilderness.

- Currently, unauthorized vehicular access to the North McCullough Wilderness boundary is primarily at two locations, the north end of Sloan Canyon and on the west at Hidden Valley. Both of these locations are usually used to access the Sloan Canyon Petroglyph Site. It is anticipated that infrastructure (e.g., housing) growth in the Las Vegas Valley, and in particular that of the City of Henderson up to the NCA boundary, could result in management issues concerning vehicular access to the NCA and interior Wilderness.

- Now that the area has been designated, visitors formerly unfamiliar with the area may learn about the North McCullough Wilderness from not only maps provided by the BLM but also websites; newspaper and magazine articles; and guidebooks from various sources. For the most part these visitors may be interested in recreation opportunities not involving the use of motor vehicles. They are looking for new opportunities or areas that are less crowded. The fact that this is a desert wilderness with its associated desert characteristics (e.g., extreme temperature and lack of water) is expected to influence interest in the area and somewhat limit visitation.

- It is anticipated that hiking/backpacking, rock scrambling, nature study, photography, horseback riding, permitted hunting, and general exploration will continue to be the primary recreational activities pursued within the Wilderness.

- As with many of the wilderness areas in southern Nevada, interest in and the potential for guiding services is low within the North McCullough Wilderness. This is not expected to change appreciably over the foreseeable future.

In order to maintain the natural appearance, including the visual landscape and the soundscape, of the North McCullough Wilderness, some limited management actions will be necessary.

- The surrounding NCA provides added protection to the Wilderness from potential unauthorized OHV intrusions. The northern, southern and western boundaries of the Wilderness, however, are near areas currently being used for unauthorized OHV recreation. Management will need to recognize that there still remains a potential for unauthorized OHV incursions within the Wilderness at these locations.

- The Wilderness will be affected not only by increased visitation to the Sloan Canyon Petroglyph Site, but also by external urban sounds from the adjacent community, and the sight of power lines and mountaintop radio repeater facilities.

- Aircraft overflights of the area are currently infrequent and usually at high elevations. However, two new airport development proposals exist that could greatly degrade solitude of the area: 1) a heliport near the northwest corner of the Wilderness would cause sight-seeing helicopter overflights every few minutes; 2) the construction of a cargo/passenger airport between Primm and Jean, Nevada, could cause additional, lower level commercial overflights, depending on takeoff and landing flight paths.

- A limited number of surface disturbances and developments can be found within the North McCullough Wilderness. Where appropriate, they will require management action to remove and/or rehabilitate them.

It is anticipated that the preservation of the primeval character and influence of the natural resources of the Wilderness will require minimal management actions.

- Other than a potential for Sahara mustard and tamarisk, noxious weeds are not known to occur in the Wilderness. New introductions of noxious weeds are possible and need to be addressed early to prevent infestation. Red brome and Russian thistle are exotic invasive weeds. These species are widespread and eradication is currently not possible, although management actions to reduce surface disturbance can help prevent it from dominating the ecosystem. Should effective eradication methods be identified in the future, they would be analyzed to determine their impact on the overall environment and utilized where appropriate.

- Within the boundary of the Wilderness, there are few recent wildfire occurrences. Because the vegetation in the Wilderness is not fire-adapted, fire has the potential to convert areas from native species dominance to dominance by non-native introduced species.

- There is minimal natural surface water within the Wilderness. The only natural occurring surface water sources are ephemeral in nature, resulting from infrequent thunderstorms and subsequent runoff. There is one wildlife water development (guzzler) emplaced prior to the Wilderness designation, but it is well hidden and not readily visible.

- Non-BLM initiated inventory, monitoring, or research projects will be periodically proposed within the Wilderness. It is anticipated that most of these proposals will add to the understanding of the wilderness resource and help to improve wilderness management. All proposals will need to be reviewed before approval to assure the work is compatible with preservation of the wilderness resource and is not more suitable for areas outside of the Wilderness.

3.0 MANAGEMENT STRATEGY

The strategy of the North McCullough WMP is to maintain or improve the natural character of the Wilderness by protecting many of the near-pristine conditions while rehabilitating existing human impacts. The strategy recognizes that as the cities of Las Vegas and Henderson expand their boundaries and populations in the coming years, the Wilderness will be subject to increases in visitor use and its associated consequences. The Wilderness will be managed in a manner that protects the qualities of wilderness character consistent with appropriate levels of public use. Wilderness characteristics will be maintained through standards and/or limitations established through this plan. Separate standards and/or limitations will be established for the highly-visited Petroglyph Management Area and the remainder of the Wilderness. This WMP emphasizes monitoring and the ability of managers to take corrective actions, if necessary.

The North McCullough Wilderness provides wilderness experiences for a wide range of the public. Consequently, the Petroglyph Management Area, as well as its northern and southern access trails, will be managed as a more concentrated use area. This concentrated use area (351 acres) constitutes about 2 percent of the 14,765-acre Wilderness. The Sloan Canyon Petroglyph Site has been an important destination, prehistorically and historically, and it will likely see more visitation as the NCA is developed and the surrounding population increases. BLM believes that visiting the Sloan Canyon Petroglyph Site is a rare and unique opportunity for the American public, and that the visitor experience at this site furthers the goals of Wilderness by generating an understanding and appreciation of cultural resources. BLM is committed to managing the Petroglyph Management Area intensively to prevent the degradation of natural and cultural resources that could result from visitor use. The remaining Wilderness, following minimal rehabilitation, will be managed to maintain its current condition and prevent gradual impacts to pristine areas.

A challenge of wilderness management is meeting public demand for its use while protecting wilderness values such as ecological integrity and solitude. This plan attempts to find an acceptable level of impacts

and to assess the trade-offs of resource protection, visitor freedom, and wilderness values. BLM is aware that each visitor holds a personal set of expectations of and assumptions on what a wilderness experience is or should be, and believe that most everyone's desired experience can be provided across the Wilderness with this management strategy. However, it is recognized that at times peak public demand will not be met (e.g. limitation of access to the Wilderness) to avoid the risk of unacceptable impacts on wilderness values.

3.1 The Petroglyph Management Area and Access

Visitors will have the greatest possibility of encountering others in this portion of the Wilderness. Access by designated trails and trailheads will be required, as will guided tours during periods of high use such as weekends and holidays. During periods of lower use (e.g., weekdays), visitors may go to the Petroglyph Management Area unaccompanied by a BLM-sponsored guide, if they obtain a permit. The sights and sounds of human activity will be common. Some risk and challenge will be encountered, but route finding will be easy with the aid of trails. The natural setting may be minimally modified in accommodating access to the site, but in a manner that protects natural resources and presents minimal visual impact. Management decisions will support healthy, viable, and naturally distributed wildlife and plant populations.

Directional signs may be provided. No equestrian or pack animal use will be allowed in the Petroglyph Management Area or the northern access trails, but it will be allowed on the Hidden Valley Trail south of the Petroglyph Management Area (Figure C.3). Packed in and certified weed-free feed will be required for animals used for recreational riding or pack stock. No camping, rock climbing, geocaching, rockhounding or dogs are allowed within the Petroglyph Management Area.

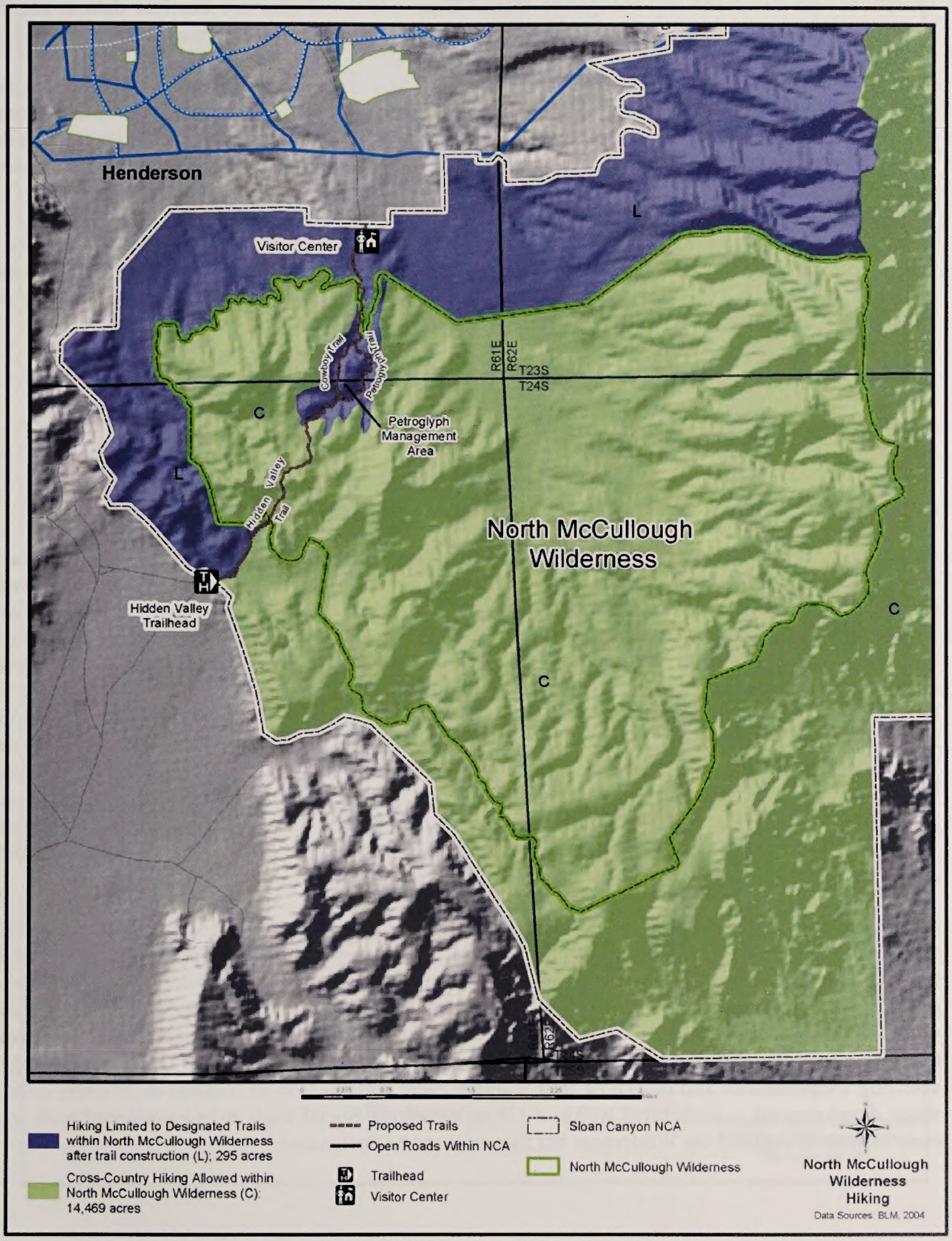
3.2 Remainder of the North McCullough Wilderness

This area includes the portion of the North McCullough Wilderness outside the Petroglyph Management Area and its north and south access trails. At this time, except for the area where hiking is limited to proposed trails developed in the future (Figure C.4), access to this portion of the Wilderness will be available for cross-country hiking from the boundary of the NCA or from a limited number of access roads. In the event of the establishment of social trails (foot worn hiking paths), occasional management activity may be necessary to protect and/or rehabilitate resources. Unwanted trails and sites may be actively rehabilitated by management or allowed to recover naturally. In the event that a social trail is desired for retention, management actions necessary to bring it up to BLM standards may be undertaken. No directional signs will be placed in this portion of the Wilderness. Cross country equestrian and pack animal use will be allowed. Packed in and certified weed-free feed will be required for animals used for recreational riding or pack stock. Rock climbing will be allowed but the use of permanent anchors will be prohibited. Camping will be allowed but within the limitations and standards specified in this plan. Geocaching and rockhounding is prohibited throughout the Wilderness. Dogs are also prohibited in the Wilderness. Management decisions will support healthy, viable, and naturally distributed wildlife and plant populations.

The following site-specific actions will be implemented at the North McCullough Wilderness. These actions meet the wilderness management objectives and respond to those Wilderness specific issues which were identified through the RMP process. All actions are supplemental to and consistent with Wilderness laws, regulations, and policies, which must further be consulted in the event of future unforeseen issues.

Figure C.3. Petroglyph Management Area

Figure C.4. North McCullough Wilderness Hiking



Because demands on the Wilderness and surrounding NCA will likely increase over the coming years, the Plan contains flexible management guidance, which will be refined based on use and resource monitoring. Visitation and resource monitoring (see Section 5.0) will be used to further define baseline resource conditions and document any changes to them. Once additional resource baseline data is acquired, a system such as LAC will be used to refine limits and standards for future actions.

The concepts outlined in the LAC System for Wilderness planning (Stankey et al. 1985) or succeeding professional standards will be used. The LAC emphasizes a framework for establishing acceptable, appropriate, and measurable resource and social conditions in Wilderness. Its process focuses on desired conditions, defines what is and is not acceptable, and develops a strategy to prevent unacceptable conditions.

Once residential development on the western side of the NCA is complete, the Wilderness and the Sloan Canyon Petroglyph Site will be just a short distance from a large urban population. To manage the potential increase in visitation, to protect the sensitive cultural and natural resources, and to protect wilderness characteristics, detailed management actions were developed.

4.0 WILDERNESS MANAGEMENT ACTIONS

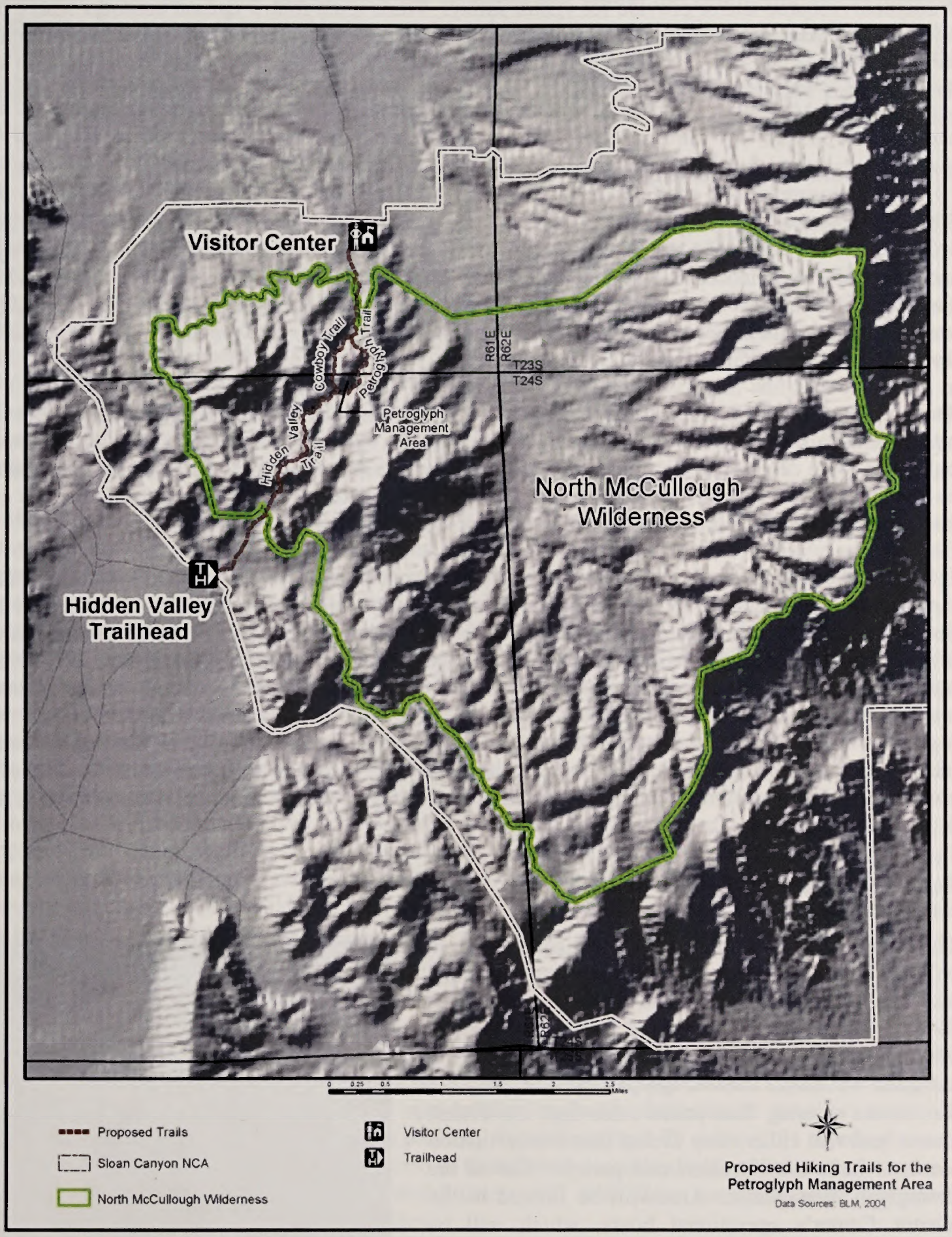
4.1 Trails Management

4.1.1 Construction and/or Designation of Approximately 3 Miles of Trail

Access to and use of the Petroglyph Management Area will be confined to the canyon bottom and a limited number of proposed trails designed to provide for flexibility in visitor needs and resource protection. Two trails that access the Sloan Canyon Petroglyph Site, one from the north and one from the south will be constructed and designated (Figure C.5). A 1.38 mile long portion of Hidden Valley Trail, emanating from the Hidden Valley Trailhead, will be constructed and will direct visitors away from the existing wildlife water development (guzzler). Within the Wilderness the 0.86 mile long "Cowboy" Trail, emanating from the Petroglyph Trail on the north end of Sloan Canyon, will be constructed to provide an alternative to the Petroglyph Trail. The 0.7 mile portion of the Petroglyph Trail that is in the Wilderness will be designated, but because it is located entirely within the wash bottom of Sloan Canyon, it requires limited construction. Because of major obstructions along the Petroglyph Trail, the Cowboy Trail will provide a more negotiable and safer alternative means of access to the Sloan Canyon Petroglyph Site. Use of the Cowboy Trail eliminates the need for placement of structures designed to negotiate the rock obstructions along the Petroglyph Trail.

In the future, if deemed necessary for the enhancement of Wilderness, trails may be added within the area where hiking is limited to designated trails (Figure C.4) provided the design and construction of a new trail will not cause impacts to sensitive cultural, natural resources, and/or wilderness character. This minimal trail development will be allowed only for the purposes of resource protection, enhancement of wilderness values and erosion control, and only after conducting a minimum requirement/minimum tool analysis and environmental assessment. Site-specific resource conditions will be considered when selecting trail locations and designing trail features. The construction of trails in the vicinity of wildlife water developments is prohibited within a 1/4-mile radius. Social trails may be adopted with minimal construction throughout the Wilderness but they will not be designated.

Figure C.5. Proposed Hiking Trails for the Petroglyph Management Area



All constructed trails will meet established trail standards as presented in BLM Manual 9114, BLM Handbook H-9114-1, and BLM Handbook H-8560-1. Trails must not be constructed with treads of more than 24 inches in width except where a wider (not more than 48 inches) trail is justified to protect the wilderness resource and/or provide for visitor safety. Trails must follow natural contours where possible and result in minimum disturbance to soil and ground cover. Maintenance will strive to limit trail width to the 24 inches and not to exceed 36 inches except where necessary for safety or sections in washes. Trail sections constructed in excess of 24 inches will be maintained at no more than 18 inches of its original width.

4.1.2 Social Trail Management

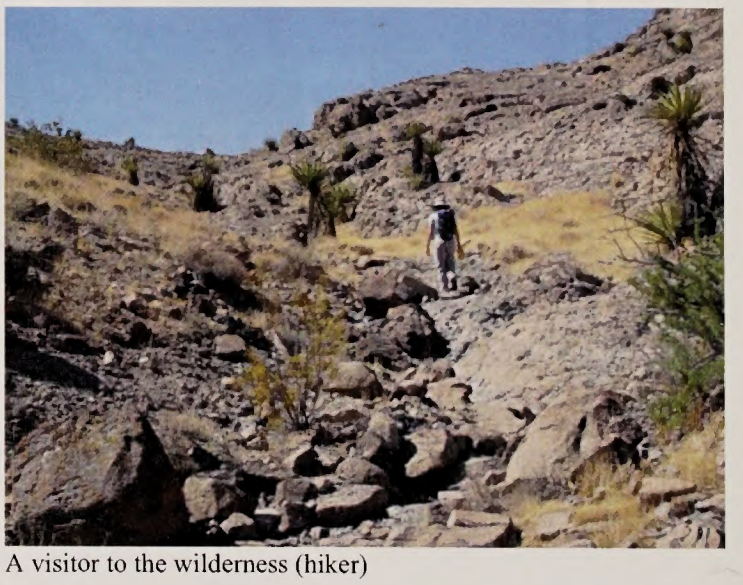
Outside the area of the Petroglyph Management Area, cross-country travel by foot and horseback riding will be allowed (Figure C.4 and Figure C.8). This may result in the creation of social trails leading to the more desirable destinations within the Wilderness. Although creation of social trails will be discouraged, Sutor and Hanna Peaks are two locations that may attract the establishment of such trails. Although these worn-in trails would not be shown on BLM maps or brochures, once they are discovered by visitors to the area they may see continued use.

To date, most travel has utilized the numerous dry washes or rocky areas throughout the Wilderness and as a result, no known social trails have been documented. Through ongoing monitoring and review of published route descriptions, an inventory of future social trails occurring outside of the dry washes, will be maintained. Once trails are discovered, they will be evaluated to determine the impact to cultural, natural resources, and Wilderness character, as well as, the objectives of this plan.

If found to be feasible, trails resulting in unacceptable impact to the wilderness and not desired for future designation, modification, or use will be rehabilitated following the guidelines as presented later in Section 4.3. In the event that a social trail is retained, problem sections only may be rerouted, improved or maintained in order to correct an unstable situation or adverse impacts resulting from the trail but not to make the trail easier to travel or encourage its use. This would include situations where slopes are in excess of 15%, which presents the potential for excessive surface erosion and where trail deterioration is high; and trail braiding either exists or is beginning. Maintenance will strive to limit trail width to 24 inches, and not exceed 36 inches except where necessary for safety or sections in washes. The completion of a minimum requirement/minimum tool analysis and environmental assessment is required prior to any trail work.

4.2 Wilderness Visitation

The main access to the Petroglyph Management Area will be controlled through a Visitor Center located near the NCA boundary at the northern end of the Sloan Canyon wash, outside the North McCullough Wilderness. Rangers, BLM staff, and/or volunteer site stewards will patrol the Petroglyph Management Area for visitors entering from points other than the Visitor Center and will either deny access based on visitation levels or issue a self-guided tour permit. Use of the Petroglyph Management Area will be limited to the Visitor Center's operational hours, which will be determined by BLM before the center is opened.



A visitor to the wilderness (hiker)

The Petroglyph Management Area, although a small portion of the North McCullough Wilderness, receives an estimated 90% of the visitation to the Wilderness. Opportunities for solitude, although occasionally good during low use periods, are generally low within the Petroglyph Management Area. Considering the amount of use within the canyon and in order to protect the special features of the area, limitations on visitor use have been established. Visitors to the Petroglyph Management Area during periods of high use such as weekends and holidays must join a BLM-sponsored guided tour. No more than one guided group, of no more than 20 people, will be allowed in the Petroglyph Management Area at one time. With prior reservations, organized groups of 10 to 35 people will be allowed to visit the Petroglyph Management Area accompanied by a BLM-sponsored guide. During periods of lower use (e.g., weekdays), visitors may go to the Petroglyph Management Area unaccompanied by a BLM-sponsored guide, if they obtain a permit. Self-guided tour permits will be issued from the Visitor Center at the north entrance to Sloan Canyon, the Hidden Valley Trailhead at the south entrance, or from a roving ranger. No more than 25 permits per hour will be issued for self-guided tours. While seeking to protect the special features (e.g., cultural resources) of the area, its unconfined character may be somewhat diminished. Resource baselines will be refined through continued monitoring (visitation and resources will be monitored in accordance with Section 5.0 of this plan). Within four years of the completion of visitor facilities (e.g. Visitor Center, Hidden Valley Trailhead, and Sloan Canyon north and south access trails), a system such as LAC will be used to establish indicators and standards for future actions. Following establishment of these standards limitations on the number of individuals, number of groups and/or group size may be adjusted.

For the portion of the North McCullough Wilderness outside the Petroglyph Management Area and the hiking area limited to designated trails (Figure C.4), visitors will have good primitive and unconfined recreational opportunities. Except for the vicinity of the north and south access trails into the Petroglyph Management Area, visitors will realize good solitude opportunities as they traverse the Wilderness cross-country. Unlike Sloan Canyon, encounters with other individuals or groups will be infrequent. As would be expected in an area immediately adjacent to an urban population, outside sights and sounds will be encountered during most trips. Within this portion of the Wilderness, the standard for visitor group encounters (visitors traveling within sight or sound of one another) more than one-half mile from the wilderness boundary and one-quarter mile from the Cowboy, Petroglyph, and Hidden Valley Trails is set at no more than five encounters per day exceeded on no more than four days per year. As with the Petroglyph Management Area, resource baselines will be refined through continued monitoring (visitation and resources will be monitored in accordance with Section 5.0 of this plan). Within four years of the completion of visitor facilities (e.g., Visitor Center, Hidden Valley Trailhead, and the Petroglyph Management Area north and south access trails), a system such as LAC will be used to reevaluate and if necessary establish new thresholds for future actions. Following this process, visitor encounter standards may be adjusted or limits imposed.

4.3 Disturbance Rehabilitation

Throughout the North McCullough Wilderness, existing disturbances and developments, as identified in Table C.1 and Figure C.6, will be rehabilitated within four years of the Sloan Canyon NCA Approved RMP/FEIS Record of Decision using appropriate methods determined through a minimum requirement/minimum tool analysis for each project. Approximately 3.75 miles (2.93 acres) of two-track vehicle routes and 244 square yards (0.05 acres) of disturbance associated with a rock and motor dam and dug well will be rehabilitated. Active rehabilitation will take place on those areas not currently rehabilitating naturally or located within washes.

Active rehabilitation will include methods/processes designed to remove and obscure the known disturbances. Methods/processes such as breaking up compacted surfaces; recontouring to original grade; seeding and/or planting of vegetation native to, and currently occurring within, the Wilderness; and

placement of dead vegetation and rock, collected near the site, to mimic the form and texture of the surrounding landscape. In the interim, all access routes will be blocked using signs and/or barricades located outside the wilderness boundary.

Looking west from Sutor Peak at a two-track vehicle route to be rehabilitated

Rock and mortar dam requiring rehabilitation

Dug well requiring rehabilitation

Typical two-track requiring rehabilitation

Table C.1. North McCullough Wilderness Disturbances and Developments

Disturbance/ Development Number	Description	Length (miles)	Area of Disturbance	Location
1	Two-track vehicle route entering Wilderness from northern boundary	1.47 miles	1.75 acres	East of Sloan Canyon. Approximate route and location shown as 4-Wheel Drive road on United States Geological Survey 1:24,000 maps. T 23 and 24 S; R 61 and 62 E; Sections 36, 1, 6
2	Short two-track vehicle route intersecting Disturbance 1 near northern boundary	.07 miles	.08 acres	T 23 S; R 61 E; Section 36
3	Two-track vehicle route entering Wilderness from Hidden Valley	.30 miles	.35 acres	T 24 S; R 61 E; Section 3, SW1/4,SW1/4,SW1/4
4	Short two-track vehicle route intersecting Disturbance 3 near southern boundary	.09 miles	.10 acres	T 24 S; R 61 E; Section 10, NE1/4,NE1/4
5	Two-track vehicle route accessing North McCullough Slickrock Catchment #1 from the southern boundary and continuing to west	1.3 miles	1.51 acres	T 24 S; R 61 E; Sections 2 and 11
6	Short two-track vehicle route intersecting Disturbance 5	.12 miles	.14 acres	T24 S; R 61 E; Sections 2 and 11
7	Rock and motor dam	N/A	133 square	T 24 S; R 61 E; Section 1, and 6

Disturbance/ Development Number	Description	Length (miles)	Area of Disturbance	Location
			yards	
8	Dug well	N/A	111 square yards	T 24 S; R 62 E; Section 6, SW 1/4
9	Short two-track vehicle route intersecting Disturbance 5 near southern boundary	.24 miles	.28 acres	T 24 S; R 61 E; Section 11
North McCullough Slickrock Catchment #1	Wildlife water development including catchment, tanks, and water access for wildlife	N/A	N/A	T 24 S; R 61 E; Section 2

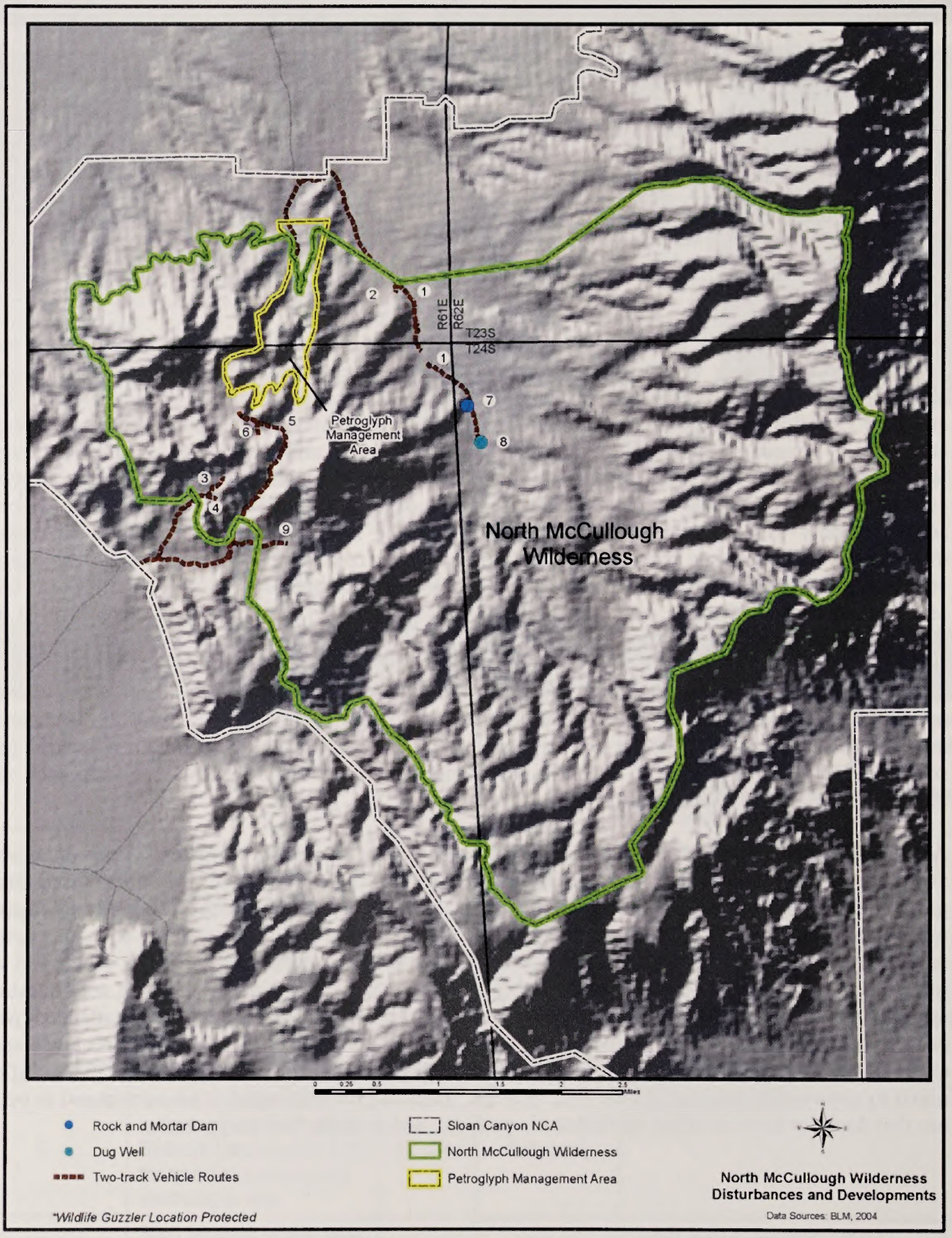
Source: BLM 2003a.

Rehabilitation of existing disturbances and developments will be conducted in order of potential for continued use. Priority will be given to the two-track vehicle routes accessing the Wilderness from Hidden Valley, Disturbances #3 (.30 miles in length), #4 (.09 miles in length), #5 (1.3 miles in length), and #6 (.12 miles in length) and #9 (.24 miles in length). These vehicle routes, despite posting have continued to be used for unauthorized access into the Wilderness and are anticipated to be a management issue until such time that signs of their presence is obscured through rehabilitation. Disturbance #1, a 1.47 mile two-track vehicle route, as well as Disturbance #2, a .07 mile long two-track spur will receive second priority. Located at the northern portion of the North McCullough Wilderness, these two disturbances have the least potential for continued unauthorized vehicle use. Although last priority for attention, in order to utilize the existing access and prevent damage to prior restoration efforts, removal and rehabilitation of the dug well (Development 8) and rock and motor dam (Development 7) will be necessary prior to the rehabilitation of Disturbances 1 and 2.

The visible portions of social trails not desired for future designation, modification, or use will be rehabilitated utilizing the same methods/processes previously identified for existing disturbances. The non-visible portions of these social trails will be left to rehabilitate naturally. Continued use of a restored social trail will be dispelled by dispersing visitation to other locations using methods such as area closures, barriers, and visitor information.

Any unauthorized activity resulting in disturbance (including vandalism); unattended personal property; and dumping within the Wilderness, will be removed or rehabilitated using a method identified through a minimum requirement/minimum tool analysis. In the case of human effects, Wilderness Rangers will receive instruction on the identification of human artifacts that are fifty years of age or more. Items that are clearly less than fifty years old will be considered unattended personal property or refuse and will be immediately removed. In the case of items clearly fifty year or more in age, or those with questionable age, they will be photographed for further consideration by an archeologist. Unattended personal property not associated with an active camp, including geocaches, will be immediately removed and held at the BLM Las Vegas Field Office. In the case of a geocache, the geocache sponsor will be notified and asked to remove the site listing from their website. Informal summit registers are considered to be casual use that does not have an effect on visitor use patterns, and as such, they may remain.

Figure C.6. Disturbances and Developments within the North McCullough Wilderness



4.4 Special Recreation Permits

No competitive or commercial (except for guiding) Special Recreation Permits (SRP) will be issued for the North McCullough Wilderness. Although Section 4(c) of the Wilderness Act prohibits commercial enterprises within wilderness areas, Section 4(d)(6) of that same Act establishes a special provision allowing for commercial services to the extent necessary for activities which are proper for realizing the recreational or other wilderness purposes of wilderness areas. Given this, SRPs for commercial for guiding and outfitters could issued outside the Petroglyph Management Area on a case-by-case basis for 1) the hunting of big game, which would be limited by the number of big game tags issued annually by NDOW; 2) academically oriented organizations whose primary purpose is education about wilderness or environmental education; and 3) organizations whose primary purpose is support to people with disabilities. Other guiding services (e.g. cultural, birding) will be evaluated on a case-by-case basis and could be permitted on an infrequent basis not to exceed two guided trips per month. Regularly scheduled guiding services will not be permitted and all guides will be required to educate and provide wilderness ethics information to their clients.

4.5 Wildlife Management

In order to provide guidance and procedures for coordination and cooperation between the BLM and the NDOW, regarding the management of wildlife within the North McCullough Wilderness, the MOU (BLM 2003b) between the BLM and NDOW will be followed. New water developments may be permitted if: 1) the BLM determines the water development will enhance wilderness values by promoting healthy, viable and naturally distributed wildlife populations; and 2) the visual impacts of the water development on the wilderness area can reasonably be minimized. Access to the existing North McCullough Slickrock Catchment #1 (Project #4916) will be managed in accordance with the MOU. A ¼ -mile avoidance area for non-wildlife related developments including trails will be established to protect wildlife waters from human influence.

The casual and commercial collection of reptiles will be prohibited within the North McCullough Wilderness. Permits for collection for scientific purposes may be issued on a case-by-case basis under a special use permit.

Desert bighorn sheep

Young coyote

4.6 Wildland Fire Management

4.6.1 Fire Suppression

Fire suppression within the North McCullough Wilderness will be conducted in accordance with the Las Vegas Field Office Fire Management Plan (BLM 2004b). The fire management target for suppression within the Wilderness will be to hold 90% of fires to 1 acre or less and 50 acres burned within a ten year period. The following guidelines will be employed during the suppression of all wildland fires within the Wilderness.

- A Resource Advisor will be dispatched to all fires occurring in or threatening the North McCullough Wilderness.
- Use of heavy equipment (bulldozers, etc.) will only be used in the Wilderness if the fire is threatening human life or property. The Field Manager must approve the use of heavy equipment in all cases.
- Air resources including helicopters and Single Engine Air Tankers (SEAT) will be included in the WILDCAD system for all wilderness fire suppression activities.
- Helibases, staging areas, and fire camps will be located outside of the Wilderness, unless authorized by the Field Manager.
- Use of retardant must be approved by the Field Manager.
- If retardant is not approved, water may be dropped from aircraft.
- Landing of helicopters will be kept to a minimum and will only occur in existing openings.
- All fire suppression activities will use Minimum Impact Suppression Techniques at all times.
- Hand crews may use conventional hand tools and, with approval from the Resource Advisor, may conservatively use chainsaws for fire line construction. Chainsaw use and line width should be kept to a minimum. Utilization of existing natural barriers, minimum "scratch line", and cold trailing is encouraged where feasible. Handline construction will be rehabilitated back to the natural contour.
- A "Leave No Trace" policy applies to the Wilderness. All evidence of human activity must be removed, to the maximum extent possible.
- Noxious weeds will be controlled in conformance with the "Las Vegas Field Office Noxious Weed Control, Fire Management Weed Transport Control" guidelines in the Las Vegas Field Office Fire Management Plan (BLM 2004b).

4.6.2 Fire Rehabilitation

Following suppression efforts, firelines will be obscured using the minimum tool and the rest of the burned area will be left to rehabilitate naturally unless it is determined necessary to prevent damage to downslope human life and/or property; or prevent the introduction and spread of exotic plant species. When active vegetation rehabilitation is deemed necessary native species, with preference for local genetic stock, will be used exclusively. In the event that earth moving equipment is utilized in the construction of fire line during suppression efforts, the same type of equipment may be used as needed for recontouring before the equipment is released from the fire.

4.7 Use of Signs

Inside the Petroglyph Management Area, limited amounts of small, unobtrusive signs and interpretive media may be located for the purposes of resource and wilderness protection. Because access to Sloan Canyon will be limited to the three designated trails, as described in Section 4.1, a limited number of signs, within Sloan Canyon, may become necessary to control unauthorized access at points along the canyons length. These signs will indicate that access to the Petroglyph Management Area is restricted to permitted access or guided tours only beyond this point. Two information kiosks will be placed outside the Wilderness boundary at the Visitor Center and Hidden Valley Trailhead.

Other than those identified for placement within the Petroglyph Management Area, signs and interpretive media inside the North McCullough Wilderness will not be allowed. Interpretive and administrative signs (e.g., trailhead signs, and visitor registers) will be located outside the Wilderness boundary. They will consist of low-profile, natural color signs that include pertinent information, such as route details, maps, and proper wilderness etiquette. In order to help ensure that activities (allowed within the NCA but not within Wilderness) do not encroach into the Wilderness, six foot brown fiberglass markers with decals will be used to post the boundary at all known and potential access routes, visitor use areas, and at "line of sight" distances along its entire length.

4.8 Interpretation

Sloan Canyon Petroglyph

The North McCullough Wilderness is a component of the Sloan Canyon NCA, and as such is part of the overall Sloan Canyon NCA Interpretive Strategy and Environmental Education Strategy (PRMP Appendix F). Interpretation pertaining to the North McCullough Wilderness will be concentrated primarily at the Petroglyph Management Area and its north and south access trails. Although a full range of interpretive media will be provided within the NCA with media visibility decreasing as the distance from developed areas increases, only media as identified in Section 4.7 will be allowed within the Wilderness. Guided tours will provide the greatest intensity of interpretation. When obtaining a permit, all non-guided canyon visitors will experience an interpretive presentation on appropriate visitor use and proper site etiquette while visiting the Wilderness and cultural resources sites. At the Visitor Center, this may include an interpretive video, virtual tour, or a static display; but at the Hidden Valley Trailhead or within the Sloan Canyon itself, it may be an informal presentation at the time of permitting. Other interpretive information pertaining to wilderness, natural resources and recreation will be presented on maps; brochures; and kiosks (outside the Wilderness) at the Visitor Center and Hidden Valley Trailhead. It is not anticipated that these interpretive actions will appreciably increase visitation to the Wilderness. They will however, educate visitors as to the proper use and enjoyment of wilderness and its natural resources.

4.9 Collection of Vegetation

Casual and commercial collection of vegetation is prohibited within the North McCullough Wilderness. Permits for collection for scientific purposes may be issued on a case-by-case basis under a special use permit.

4.10 Non-native Vegetation Prevention and Control

As established in the Sloan Canyon NCA PRMP, the North McCullough Wilderness has been designated as a Zone 1 Management Emphasis Area (MEA) for vegetation. As a Zone 1 MEA it will receive priority in the rehabilitation or improvement of conditions in native plant communities. Ideally, the Wilderness will be managed to sustain only native vegetation species. Toward this end, activities that may lead to the spread of non-native species will not be permitted, or will be mitigated to make the spread of these species unlikely. Through annual monitoring, where non-native species are found, emphasis will be placed on controlling small infestations, plants likely to spread and displace native plants, or plants that may disrupt ecosystem function. If it is determined that control or eradication is possible, and after completion of a minimum requirement/minimum tool analysis, the following prioritized control measures may be employed: 1) grubbing with hand tools if plants will not resprout and where infestations are of a size manageable by a small number of workers; 2) herbicides applied by backpack or packhorse equipment where grubbing is not effective; 3) biological control agents approved by the Animal and Plant Health Inspection Service where infestations are of such a size that eradication is not feasible; or 4) herbicides applied with motorized equipment where control is feasible, control impacts are quickly and readily rehabilitated, and the infestation is of such size that herbicide cannot be effectively applied otherwise. In the event that natural recruitment from a local source is not adequate, reseeding control areas with native species will be permissible.

Following a minimum requirement/minimum tool analysis, BLM may conduct projects within the Wilderness, on a case-by-case basis, to rehabilitate disturbances, which would decrease the likelihood that these areas would become dominated by invasive plant species. Rehabilitation measures will include those previously identified in Section 4.3 of this plan.

Noxious and invasive weeds will be managed under integrated weed management principals, including following BLM's *Partners Against Weeds – An Action Plan for BLM* (BLM 1996) initiative for weeds, as well as the Vegetation Restoration Strategy (PRMP Appendix H).

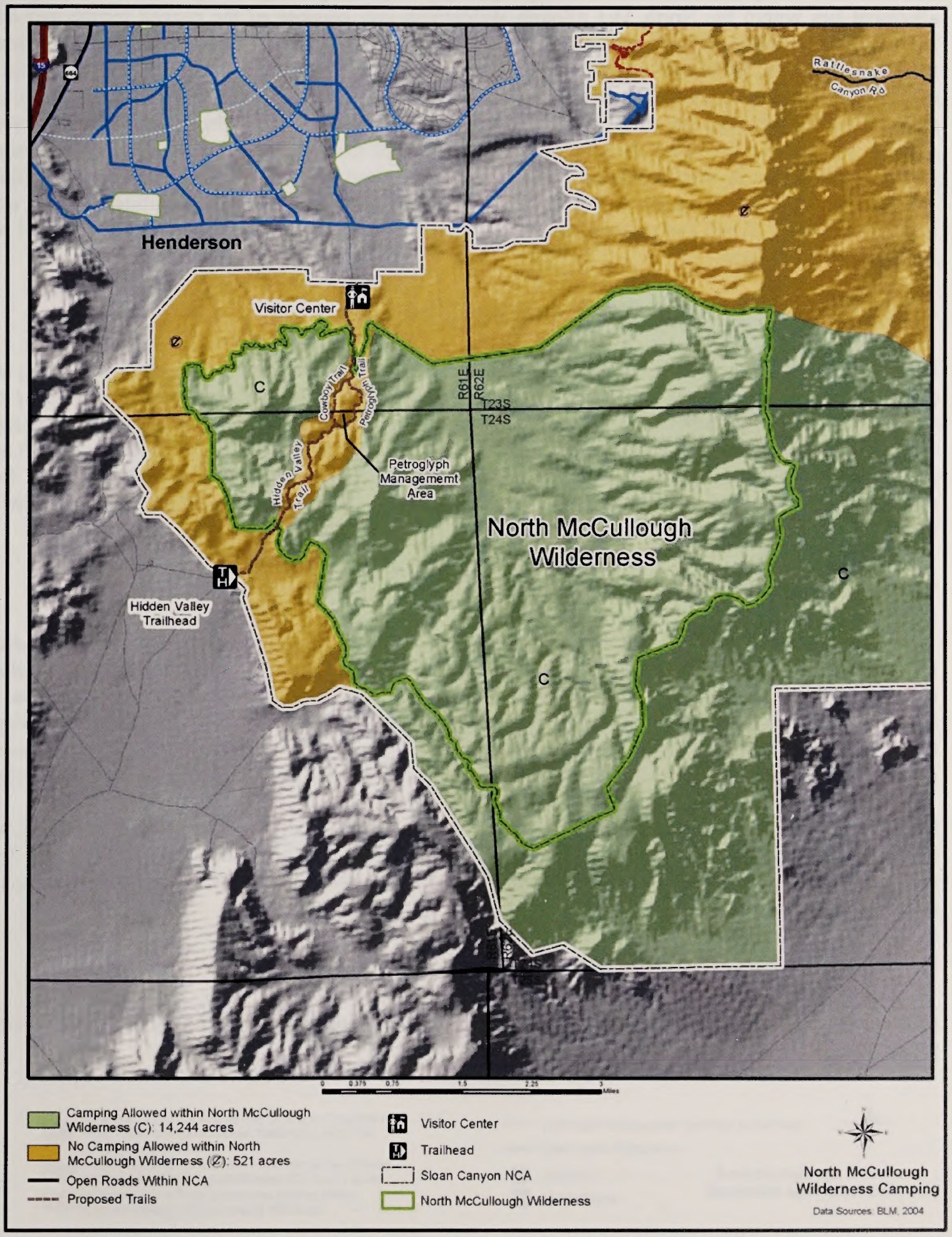
4.11 Nighttime Use

To assist in the prevention of cultural resource vandalism, destruction, and/or removal, the Petroglyph Management Area is designated for day-use only, with fires, camping, and nighttime uses prohibited (Figure C.7). Exceptions to this may be allowed only under special circumstances and with approval from the Sloan Canyon NCA or BLM Las Vegas Field Office Manager.

In the remainder of the Wilderness, nighttime use including primitive, dispersed camping will be allowed. Campers will have to be self-reliant as no developed camping sites, water, or other amenities will be provided. Campfires will be allowed but, only fuels packed in can be used. Unused campfire fuels must be packed out upon exiting the Wilderness. The burning of naturally occurring fuels will not be allowed. Campfires are allowed only at a visitors camp site, using fire pans or fire blankets. All fire waste products will be packed out of the Wilderness. Construction and use of fire rings will not be allowed. BLM encourages the use of portable gas, jellied petroleum, or pressurized liquid fuel stoves for cooking. Visitor information regarding nighttime use and Leave-No-Trace principles will be provided at the Visitor Center and the Hidden Valley Trailhead.

If more than two campsites are identified within one-quarter mile of each other, the campsite(s) presenting the least (e.g., newly established) disturbance will be rehabilitated to prevent further camping impact and proliferation of campsites. Camping sites closer than 500 feet to wildlife water developments or 300 feet to other sensitive resources (e.g., cultural sites) will be rehabilitated.

Figure C.7. Camping



4.12 Livestock Grazing

The Hidden Valley Allotment is currently open to livestock grazing. A portion of this ephemeral allotment lies within the North McCullough Wilderness but, because of the rugged terrain and lack of water, cattle typically do not wander into the Wilderness. If on-the-ground evaluations determine that forage is available, BLM will allow livestock grazing in the Hidden Valley Allotment, consistent with allotment-specific objectives. Grazing in the allotment may continue unless the permittee voluntarily relinquishes the privilege, permits, or leases in which case the allotment will be closed to further livestock grazing. Cattle are the only class of livestock authorized to graze on the Hidden Valley Allotment. Horses may be kept in corrals outside the Wilderness and used to perform ranch-related work within the Wilderness. Actions designed to attract livestock into the Wilderness are prohibited. Such actions include placement of salt and mineral supplements. New range improvements will not be allowed within the NCA or Wilderness.

4.13 Equestrian and Pack Animal Use

Equestrian and pack animal use is prohibited in the Petroglyph Management Area and its northern access (Figure C.8). Cross-country equestrian and pack animal use is allowed throughout the remainder of the North McCullough Wilderness. No animal, other than a horse, burro, or mule may be used for equestrian and/or pack animal use in the Wilderness. Except for incidental browsing, grazing of equestrian and/or pack animals is not authorized. Feeding of animals is limited to packed-in and certified weed-free feed to prevent the spread of noxious and invasive weeds. Watering of equestrian and/or pack animals at wildlife water developments is prohibited.

4.14 Other Recreational Use

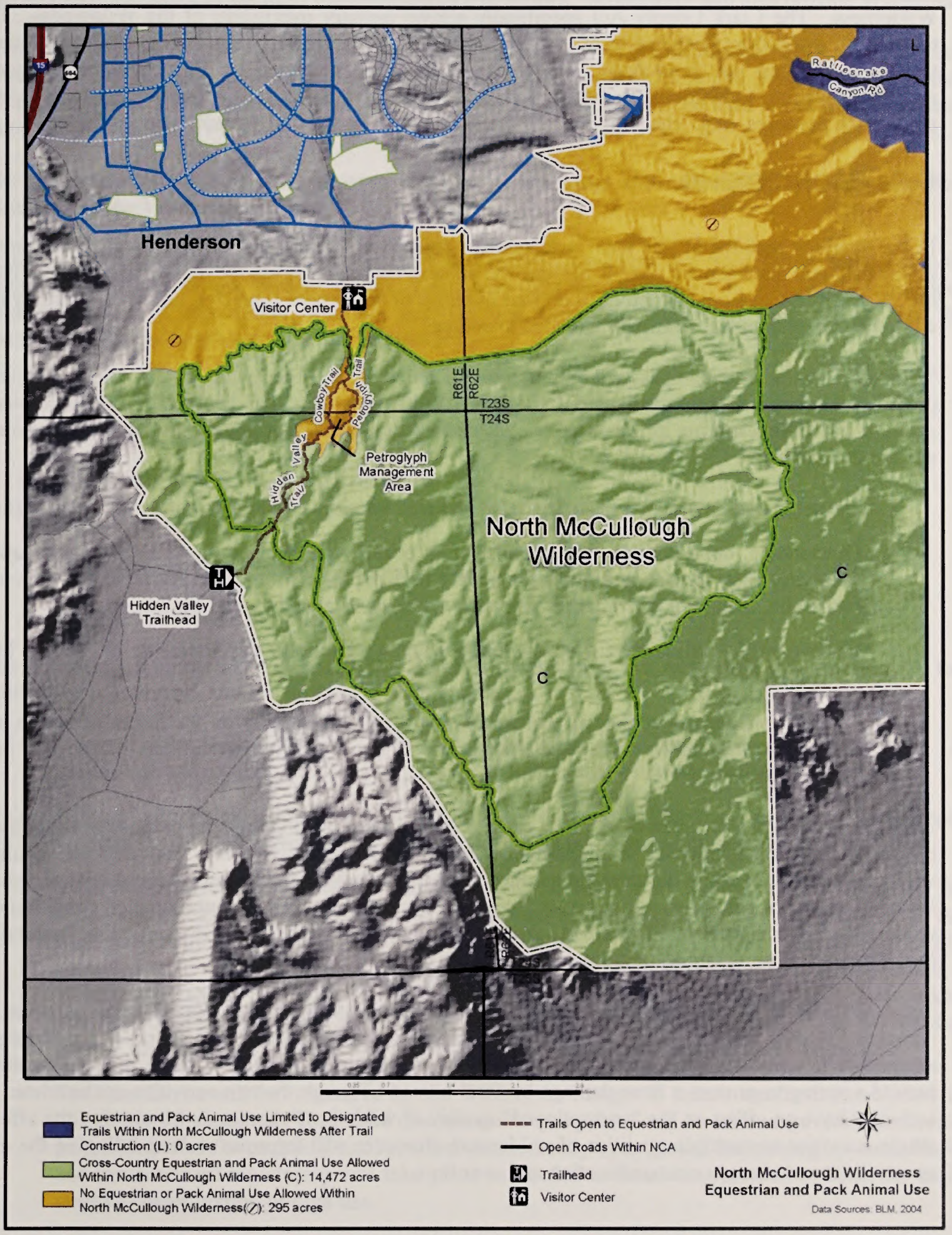
The nature of the North McCullough Wilderness is not conducive to a quality rock climbing experience. As a result, its desirability as a rock climbing destination has been low with very little rock climbing activity. This is not expected to change in the foreseeable future. Bouldering and traditional rock climbing (without permanent anchors) will be allowed in the North McCullough Wilderness except for the Petroglyph Management Area and its northern access; and areas that are found to contain sensitive resources, where it will be prohibited. Permanent anchors and other climbing hardware will be removed.

Rockhounding is prohibited throughout the Wilderness. No geocaching will be allowed anywhere within the North McCullough Wilderness. Upon discovery, geocaches will be immediately removed and held at the BLM Las Vegas Field Office. Where possible, the geocache sponsor will be notified and asked to remove the site listing from their website.

4.15 Management of Dogs

In order to eliminate the possibility of wildlife harassment and conflicts with other visitors, dogs are prohibited in the North McCullough Wilderness.

Figure C.8. Equestrian and Pack Animal Use



4.16 Aircraft Overflights

The BLM does not have administrative jurisdiction of the airspace above the Sloan Canyon NCA and Wilderness. The Clark County Act specifically allows military overflights of the Wilderness. Flight testing and evaluation; designation or creation of new units of special use airspace; or establishment of training routes are not precluded. Wilderness overflights conducted by BLM will be designed to minimize impacts to wilderness characteristics. These overflights will primarily be for wilderness monitoring purposes, (e.g. checking for new disturbances, unauthorized vehicle use).

5.0 MONITORING

In the previous sections of this plan, management objectives for the North McCullough Wilderness are established and management actions designed to achieve those objectives are described. This monitoring section tracks the outcome of activities on four qualities of wilderness character, not just the quality of the wilderness the action was primarily intended to address.

Wilderness character encompasses a combination of biophysical, experiential, and symbolic elements as described by four principle qualities defined in the Wilderness Act. The combination of these qualities distinguish wilderness from all other lands. These four qualities are of equal importance to one another and are defined as:

- Untrammeled – wilderness is unhindered and free from modern human control or manipulation.
- Outstanding opportunities for solitude or a primitive and unconfined type of recreation – wilderness provides opportunities for people to experience solitude or primitive and unconfined recreation, including the values of inspiration and physical and mental challenge.
- Undeveloped – wilderness is substantially without permanent developments or modern human occupation.
- Natural - wilderness ecological systems, being affected primarily by the forces of nature, retain their primeval character and influence substantially free from the effects of modern human civilization.

A single activity is likely to have an effect on several qualities, even though the purpose of the activity is to affect only one quality of wilderness character. A single activity may improve one quality of wilderness character while diminishing another. For example an activity such as weed control, which is intended to restore natural conditions over the long term, may diminish the untrammeled condition of the wilderness in the short term. These two separate outcomes, the effectiveness on improving "natural" and the side effect of diminishing "untrammeled," will be monitored separately.

Since activities may affect several qualities, separate activities undertaken for different purposes, may cumulatively diminish one of the same qualities of wilderness character. For example, a trail might be designated to control visitor impacts on vegetation. In the same vicinity, a fence may be constructed around a spring to protect it from damage by feral horses. Though the two activities are unrelated, both activities have an effect on the "undeveloped" quality of wilderness character. Monitoring the effects of single activities to multiple qualities of wilderness character will improve understanding of the effects upon wilderness character in combination and over time.

Effects of intentional, unintentional, and unauthorized activities will all be captured under the monitoring system. This will provide a greater understanding of the overall and specific condition of the Wilderness and will alert managers of the need to initiate corrective actions. Monitoring will also provide Wilderness

Managers with more complete information which will improve the evaluating of future proposed activities. The monitoring will not be used to compare the North McCullough Wilderness with other Wilderness Areas in the National Wilderness Preservation System, but will be used to track the conditions and changes within the Wilderness itself.

The following monitoring will assist the BLM in tracking and improving the untrammeled condition of the Wilderness:

A log of annual management and other activities that control or manipulated flora, fauna, soils, water, or natural disturbance factors present in the Wilderness will be maintained in the area's permanent wilderness file. A description, location, purpose, and expected outcome of each activity will be documented. Activities that may be tracked include—

- Rehabilitation projects
- Fire suppression activities
- Treatments of non-native vegetation
- Relocation of wildlife
- Wildlife water developments (guzzlers)
- Periods of livestock grazing

The following monitoring will assist the BLM in preserving the outstanding opportunities for solitude or a primitive and unconfined type of recreation:

- A log of sights and sounds of civilization will be maintained in the permanent wilderness file. A description and location of the activity inside or outside the Wilderness will be documented.
- A log of all restrictions on visitor use within the Wilderness will be maintained in the permanent wilderness file. A description of the restriction and its purpose will be documented.
- Visitor use encounters on designated trails will be monitored through one or more of the following methods. Opportunities for visitor sign-in and comment may be available at the trailheads. Public comments received at the trailhead, by mail, or e-mail will be periodically compiled and reviewed. Automated visitor counters may be located at trailheads. In addition, a Wilderness Ranger will visit trailheads at least once a month to record the number of parked vehicles and collect written comments (if any) or record trail counter data. The Wilderness Ranger will hike each trail monthly to record the number of encounters and trail conditions.
- Trail conditions will be monitored by the Wilderness Ranger to assure standards established in this plan are maintained. Trail tread measurements and photos will be taken at several monitoring points identified for each trail and recorded electronically by a Global Positioning System. Photo and measurement monitoring will take place as needed at locations observed to be in the early stages of deterioration or high use.
- Visitor use encounters off-trail are unlikely to exceed acceptable limits and will not be as frequently monitored; however, any off-trail encounter by a Wilderness Ranger will be recorded,

as well as any public comments or volunteer reports regarding off-trail encounters or conditions, and entries from registers. An important focus for monitoring off-trail use will be to identify the development of informal use trails (social trails). A review of published or internet provided information will also be used to identify areas of new popularity and then inspected in the field. Where monitoring identifies elevated use patterns, and especially if violations are detected, Law Enforcement Ranger patrols will be increased in those areas. Trail counters may also be used where elevated use patterns are detected.

- The Wilderness will be monitored at boundary roads or access points once a month by Law Enforcement Rangers to detect vehicle entry violations. Low-level overflight monitoring may be used to assist in detecting motor vehicle violations in progress, or to identify other activities undetected by ground monitoring.

The following monitoring will assist the BLM to track and, where possible, improve the undeveloped and natural appearance of the wilderness:

- A log of all the developments present in the Wilderness will be maintained in the permanent wilderness file. A description, location, purpose, and expected outcome of the feature will be documented.

- All former vehicle trails that are rehabilitated will be checked in the field at least twice a year to assure they are not continuing to receive motorized use and the success of rehabilitation. If unauthorized vehicle use continues, modifications as described in this plan will be made to the closure.

The following monitoring will assist the BLM in preserving the naturalness and primeval character and influence of the wilderness:

A log of all known human alterations to the ecosystem will be maintained in the area's permanent wilderness file. A description and location will be documented or referenced. Conditions that may be tracked include:

- Non-native species
- Threatened, endangered and sensitive species
- Species no longer present in the Wilderness
- Air quality
- Presence, abundance, and distribution of native species

A log of natural disturbances will be maintained in the area's permanent wilderness file. A description and location will be documented or referenced. Activities that may be tracked include—

- Fire
- Flood
- Insect or disease outbreaks

Monitoring for noxious weeds will occur at least once a year, especially focused on trails, in washes or other areas receiving regular visitor use.

Wildlife monitoring will primarily be conducted by NDOW according to the agency's established protocol. The BLM Wilderness Rangers will also record wildlife sightings, especially for nesting raptors, bighorn sheep, Gila monster, chuckwalla, and desert tortoise. Monitoring or research by other entities may occur according to protocol described in this plan.

Livestock monitoring will be conducted during active periods within the Hidden Valley Allotment. Monitoring will be conducted on at least a monthly basis as well as in association with other monitoring efforts within the Wilderness. The number of animals, location within the Wilderness, and animal identifiers will be documented and added to the area's permanent file.

Findings or a reference to the findings of inventory, monitoring, and research projects completed in the Wilderness will be included in the permanent wilderness file. Other known research outside the Wilderness, but applicable to the understanding of the wilderness ecosystem, may be referenced.

5.1 Plan Evaluation

All field reports, photographs, and monitoring data will be maintained in the official wilderness files at the BLM Las Vegas Field Office. The North McCullough WMP will be revised when the management actions prescribed no longer meet the wilderness management objectives, or when a change in the existing situation warrants revised management. The need for revision will be reviewed every five years. If the decision is made to revise this plan it will be accomplished with public participation. Minor revisions such as typographical or cartographical errors will be made by inserting an errata sheet.

5.2 Plan Implementation Sequence

Management of the North McCullough Wilderness will be carried out in accordance with this plan under the direction of the BLM Las Vegas Field Office Wilderness staff. Other BLM staff and volunteers may be called upon for support or subject expertise. Four types of management activities may occur: 1) ongoing activities carried out through the life of the plan; 2) activities that will be implemented as special projects as identified in the plan; 3) management activities that are triggered by changes in conditions as detected through monitoring; and, 4) activities that may be proposed in the future for which general guidance exists in the plan, or that may not be addressed in the plan. The actual implementation could be altered based on funding and staff availability outside the control of this plan. The following list shows the priority sequence for accomplishing management activities of the plan.

5.2.1 Ongoing Activities

- Maintenance of boundary signs
- Trailhead and vehicle access point maintenance
- Wilderness monitoring
  - Visitor use monitoring
  - Natural resource monitoring
  - Trail condition monitoring
  - All other wilderness character monitoring
- Visitor information dissemination

5.2.2 Special Projects (in order of priority)

- Archaeological, botanical, and T&E clearances to support plan implementation.
- Write and publish supplemental rules for all visitor use standards established in the plan as specified under 43 CFR 8365.1-6.
- Rehabilitation
  - Former vehicle routes
  - Rock and mortar dam
  - Dug well
- Trail designation
  - Trail construction
  - Trail marking
  - Trailhead development (Coordinated with Sloan Canyon NCA)
- Signing
  - Trailhead and access point wilderness information signs
  - Trailhead kiosks
  - Wilderness boundary markers
  - Sloan Canyon access limitation markers

5.2.3 Changing Conditions

- Rehabilitation
  - New visitor impacts
  - Fire rehabilitation
- Trail maintenance and stabilization
- Management of social conditions
  - Visitor use requirements
  - Group size
- Fire suppression
- Non-native plant control

5.2.4 Potential Future Proposals

- Guiding, outfitters, and other SRPs
- Wildlife projects
- Natural resources research

Future proposals not analyzed within this document will require separate Environmental Assessments and 30-day public notification.

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APPENDIX D

Cultural Resources Management Plan

The Sloan Canyon National Conservation Area Cultural Resources Management Plan

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Angus R. Quinlan
Ginny Bengston

January 2005

Report submitted to the Bureau of Land Management,
Las Vegas District Office

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INTRODUCTION

The cultural resources of Sloan Canyon National Conservation Area (NCA) were one of the primary reasons Congress established the NCA in 2002. This appendix provides three key elements for management of cultural resources during the first stage of implementation:

- A cultural context and relevant research questions for archeological and ethnographic work that may be conducted in the early stages of developing the NCA
- A treatment protocol to be implemented in the event that Native American human remains are discovered
- A monitoring plan to establish baseline data and track effects on cultural resources as public use of the NCA grows.

The primary management of cultural resources for the NCA would be provided in the Record of Decision for the Resource Management Plan (RMP)/Environmental Impact Statement. These management guidelines would provide more specific guidance than standard operating procedures. As the general management plan for the NCA is implemented, these guidelines could change over time as knowledge is gained of the NCA, its resources, and its uses. All cultural resource management would be carried out in accordance with the BLM/Nevada State Historic Preservation Office Statewide Protocol, including allocation of resources and determinations of eligibility. Activity-level cultural resource plans to implement the Sloan Canyon NCA RMP would be developed in the future.

PART I: CULTURAL CONTEXT AND RESEARCH DESIGN

The relationship between cultural resources management and research significance has been defined at three interpretive levels (Hardesty 1995; Hardesty and Little 2000). The first and most basic level is the archaeological context. The archaeological context consists of the field observations of artifacts, features, and other physical remains in spatial relationships to each other and to the environment in which they are found. Contextual information of this type includes descriptions of provenience, associations, and physical matrix; site size and layout, relative abundance and diversity of physical remains, etc. The second level consists of the data required to address research questions derived from middle range theory that links archaeological context to past human activities (e.g., Binford 1980, 1983; Leone 1988; Schiffer 1987). Questions that can be addressed at this level include how sites are formed, how to distinguish different subsistence practices, past environments, population sizes, domestic architecture, and household form and activities. Middle range questions may also include questions of who made the artifacts (ethnicity), what are the artifacts, how were they made (technology), and when (chronology). The third level comprises the data required to address questions derived from general anthropological theory. Questions derived from general theory address issues such as the direction and pace of cultural evolution, historical materialism, and symbolism. The questions posed at this level are derived from theoretical paradigms that reflect the current understanding of the human past in a much broader perspective than an area the size of Sloan Canyon NCA, or even the southern Nevada region. Recent paradigms include such perspectives as cultural materialism, evolutionary ecology, world systems theory, structuralism, symbolism, Marxism, critical theory, and many others. The body of data that is relevant to questions posed under any particular paradigm can vary greatly, but tends to build on results of previous studies. That is, data requirements tend to become more inclusive rather than less inclusive in terms of the kinds of data required to address new questions.

These three levels of significance provide a guide for evaluating the importance of the cultural resources of Sloan Canyon NCA. In a literal sense, all cultural properties are important for addressing questions that can be posed from at least one of the three interpretive levels. But the issue for management of cultural resources in any particular area is whether or not it has potential for containing uninterpreted information. The goal of determining which cultural resources have important information value is to record all cultural properties and preserve a sample of the variety of information adequate for future theoretical, interpretive, and cultural explanations.

Meeting the goal of preserving a sample of the kinds of cultural resources adequate for future research entails preserving a sample of site types containing each category of uninterpreted information. Development of the widespread use of a Geographical Information System (GIS) within the National Register process is one potential way of expediting the recognition of uninterpreted information and revealing data gaps. The other way of recognizing what information is important for future research needs is development of a research design. Data are important and, in many cases, exist only in the context of interpretive frameworks (theories and paradigms). Thus, a research design that links data to an interpretive framework will identify what cultural properties are important. However, what archaeological information is important also depends upon redundancy. That is, at some point the answer to a significant research question requires no additional information, or where each additional bit of information adds very little to the answer (Hardesty 1995). In the following discussion we have attempted to identify broad research questions that remain at the core of most archaeological research in southern Nevada and the kinds of archaeological information that could be found on Sloan Canyon NCA that are important to addressing those questions.

Sloan Canyon NCA is on the boundary of several cultural and environmental regions. The Mojave Desert, the Great Basin Desert, and the Sonoran Desert, each afford a different suite of resources that have contributed to different cultural developments and that respond differently to climate changes. Consequently, the boundaries of prehistoric cultural groups have often been drawn along the boundaries that define the three deserts (which correspond to the boundaries of the distributions of many plants and animals). The basic material culture inventory of the prehistoric peoples in all three deserts exhibits broad similarities, allowing for differences in the native toolstones and other materials available in each area. But for each named prehistoric culture, artifact types have been identified through which the presence of a particular cultural group can be inferred when those artifacts are found. Cultural boundaries have often been defined on the basis of material culture, which has been inferred to reflect adaptation to environment.

Sloan Canyon NCA has the potential to provide cultural resources relevant to addressing a broad spectrum of research questions phrased in terms of current research paradigms. The research questions defined below are divided into seven very broad categories following Duke et al. (2004) (with the addition of a historic research theme). While the questions posed below provide a guide for assessing the importance of cultural resources known and expected in Sloan Canyon NCA, given our current understanding of the prehistory and history of North America in general, and Sloan Canyon NCA in particular, it must be recognized, as Hardesty has noted, "Research questions…change as new information and theories emerge. For these reasons, evaluating the information potential of archaeological properties requires tracking the dynamics of scientific and other scholarly research" (1995:7).

Archaeological studies in southern Nevada and surrounding regions have revealed the presence of people since at least the end of the Pleistocene and continuing into the present in a chronological sequence that currently has few, if any, temporal gaps when the region is viewed at a broad scale. The chronology and content of the archaeological record have been summarized and interpreted in numerous publications from a variety of theoretical paradigms appropriate for the time of their publication including, but by no

means limited to, Grayson (1993), Lyneis (1982a, 1982b), Warren and Crabtree (1986), Schaafsma (1986), Madsen (1986), and Pippin (1995). A theme that is pervasive in the interpretation of prehistoric archaeological sites in the Great Basin, including the Mojave Desert and immediately adjacent parts of the Desert West, is the relationship between people and their physical environment. This theme has its origins in the early work of Julian Steward, particularly his seminal volume Basin-Plateau Aboriginal Sociopolitical Groups (1938). Steward (1929) also completed the first systematic study of Nevada's rock art, rejecting the idea that it was a form of "art for art's sake" and instead argued that it was the residue of culturally meaningful practices in the past. Steward's study was influential in shaping the terminology used to characterize abstract imagery, as well as identifying the important research theme of the balance between schematic and naturalistic imagery in rock art assemblages as a characteristic of stylistic variation.

Starting from interpretation of the distributions of cultural groups on the basis of their use of natural resources, many subsequent studies have focused on developing a more detailed and accurate understanding of prehistoric, ethnohistoric, and historic distributions of cultural groups through time and their relationships to natural resources, and causes of change in the lifeways of different groups at different times. Many of the sources of cultural change that have been identified in the many studies since Steward's initial study are environmental, particularly climatic change and associated changes in the plant and animal resources used by people. But other changes entailed the relationships between indigenous groups and their neighbors, either in the sense of diffusion of important technologies (i.e., horticulture) or incursions of people(s) from adjacent areas. Because these mechanisms (climate change, diffusion of technology or migration of people) have been interpreted as the primary causes of cultural change, the chronology of the region has largely been structured around these events. A very brief synthetic summary of the southern Nevada cultural chronology as it relates to the Sloan Canyon NCA is presented in Table 1. Also included in Table 1 are one or more of the broadest research questions for the time periods defined. For the most part the questions in Table 1 address the issues that were considered in distinguishing the time period from preceding and succeeding periods. These are questions posed at both middle and general levels of theory that will help define what kinds of data at the level of archaeological context are important and should be considered in evaluating the eligibility of sites for the National Register of Historic Places. More specific questions relating to Sloan Canyon NCA are posed in the following text.

Most of the archaeological record for southern Nevada is a record of Archaic hunter-gatherers. The Archaic Period was preceded by a poorly known Paleoarchaic, and possibly even a Paleoindian Period. The earliest inhabitants of southern Nevada may have arrived as early as the end of the Pleistocene (ca. 10,000 BP), but the few artifacts that suggest their presence are generally isolated surface finds that cannot be securely dated, and there is not yet enough data to determine much about their lifeway in terms of subsistence, land-use, or other cultural behaviors. The primary research questions for this period address whether there was a single population of people represented by each of the distinctive projectile point types (fluted points and the various large stemmed point types), or if the different point types represent task specific technologies; and whether people focused on lake-margin resources, large game, or were already relying on the generalized use of resources as they became available in the environment (Basgall and Hall 1991; Jones and Beck 1999). Evidence of this period is usually found in areas where water was present, especially along ancient shore-lines (Campbell and Campbell 1935) making it unsurprising that no evidence has yet been found in the Sloan Canyon NCA given the lack of such water sources in the area. However, this may be a sampling bias as sites identified to this period have been found along a wash near Yucca Mountain (Pippin et al. 1984). Any artifacts relating to the Paleoindian/Paleoarchaic Period found in Sloan Canyon NCA would provide important information regarding this early and controversial period in southern Nevada.

Table 1. Cultural Sequence and Context for Southern Nevada Focused On the Area of Sloan Canyon NCA

Period	Time Range (in years BP)	Environments	Identifying Characteristics of Assemblages	Some Important Research Issues
Historic	150—present	Mechanical rather than climatic changes in the environment caused by mining, transportation routes, introduction of domestic livestock, and larger settlements	Artifacts of Euro-American manufacture and land alteration associated with activities such as mining (adits, shafts, etc.), transportation (i.e., roads), etc.	What has the impact of various activities associated with Euro-American settlement been on the local environment and the people who lived there before?
Ethnographic		Essentially modern	Southern Paiute, Chemehuevi, Mohave	Issues related to Native American perspectives and world view. What do particular places and activities mean to different tribal groups?
Numic	700—present	Essentially modern	Arrow-sized projectile points of the Desert and Cottonwood series	Were the Numic immigrants from the west or local people? Did they displace the horticultural Puebloan peoples or simply remain after horticulture was no longer practical? What environmental perturbations affected horticulture?
Ceramic/ Saratoga Springs	1500—contact	Essentially modern	Arrow-sized projectile points of the Desert and Cottonwood series; ceramics of Paiute, Puebloan and Patayan styles; evidence of Puebloan influence in house structures	When and why did the various cultural/ethnic groups arrive in southern Nevada? How did the various cultural/ethnic groups identified by different ceramic styles differ in their land/resource use patterns? What was the nature of interactions between/among these groups?
Middle Archaic/ Gypsum	4000—1500	Return to less xeric conditions	More varied medium-sized dart points of the Elko, Gypsum, and Humboldt series; increase in millingstones, larger sites	Was there a shift in residential settlement to a greater focus on specific locations rather than short-term occupation of general areas as before? Is the increase in biface production and the occurrence of non-local toolstone a reflection of trade, relocation of villages, or logistical foraging?
Early Archaic/ Pinto	8000—4000	Environmental drying	Pinto-type points, millingstones, curation and reuse of tools	Does this period overlap with the preceding period indicating an in situ shift in land-use patterns in response to environmental drying that reduced the distribution and abundance of previously used resources requiring a shift to greater reliance on small seeds?
Paleoindian/ Paleoarchaic Lake Mojave	Prior to 8000	Late Pleistocene fauna, lacustrine and riverine features	Fluted points, large stemmed points, crescents, steep-sided unifaces or scrapers	Were people focused on lake-margin resources, large game, or already relying on generalized use of resources as they became available in the environment?

Until the last decades the Archaic period was characterized as very long period of time during which there was no cultural change (Jennings 1957), which led to many researchers recognizing the major question for this long time period to be "...are there large-scale directional trends and changes that characterize this period?" (Lyneis 1982a:167). Cultural changes during the Archaic are generally characterized as responses to environmental change, and differences between areas are characterized as responses to environmental variability with flexible subsistence strategies regardless of whether the explanatory model in which interpretation is framed follows the lead of Steward's (1955) Cultural Ecology theoretical framework or the newer evolutionary ecology models (e.g., Bettinger and Baumhoff 1982). Flexible subsistence strategies also allow a population to accommodate short-term fluctuations in availability of plant and animal foods. More detailed knowledge of environmental conditions and the archaeological assemblages for time periods during which recognizable environmental conditions prevailed has allowed recognition of a tripartite cultural sequence for the Archaic Period in southern Nevada as shown in Table 1. The division is, however, a generalized pattern recognized over a broad area and may or may not be visible in localized areas such as Sloan Canyon NCA. Any archaeological resources that allowed recognition of fine-scale chronology within the Archaic Period would clearly qualify as important.

The Archaic Period essentially ends with the appearance of a number of material culture innovations, many or most of which originated in adjacent areas. Ceramic vessels of Puebloan and Patayan styles are the most common archaeological evidence the marks the end of the Archaic, but the appearance of ceramics is often accompanied by evidence of horticulture and changes in house structure. Sherds of ceramic vessels are commonly dated by reference to chronological sequences developed from sites in the Southwest. Artifacts that can clearly be affiliated with a cultural tradition from an adjacent region (i.e., the Southwestern ceramic traditions) provide important information regarding cultural interactions and chronology.

The arrival of peoples in the Great Basin speaking languages belonging to the Numic language family is thought by many to have occurred sometime around 700 BP (Warren and Crabtree 1986), though the exact timing is a matter of debate, as is what artifacts can be used to identify the Numic groups (Madsen and Rhode 1994). Numic groups are generally characterized as broad-spectrum foragers who used a greater range of resources that were more costly to collect and process than the larger game Archaic groups are thought to have relied on (Bettinger and Baumhoff 1982). Although various attempts to explain the relationships between Archaic, Numic, Puebloan, and Patayan groups have been proposed, the relationships between and among these peoples remain unclear. Consequently, any site with artifacts that can clearly be affiliated with one or more of these groups (again, potsherds are most frequently the artifacts by which the groups are recognized, but other artifacts may also be relevant) are important sources of information regarding population interactions and movements.

Class II and III inventories have already been conducted in the Sloan Canyon NCA (Duke et al. 2004; White 1998). The surveys provided a sample of the archaeological resources that occur in the NCA. Prior to conducting their archaeological inventory of the NCA, Duke et al. (2004) developed a research design that identifies six major categories of research issues that can be addressed with data from archaeological resources in the Sloan Canyon NCA. The six categories of research questions include: 1) chronology of human presence in the area; 2) land-use in marginal environments; 3) technological organization; 4) population interactions and replacements; 5) rock art; and 6) current Indian perspectives (Duke et al. 2004). We have also added a seventh: research issues for the historic period. The following research questions are based on the findings and recommendations reported from the survey (Duke et al. 2004) and ethnographic studies conducted at the same time (Bengston 2004). However, because environmental change is generally seen as the triggering mechanism of cultural change in most theoretical models of culture change in the Desert West, evidence of environmental change is important to addressing literally all archaeological and ethnographic research questions. Thus, environmental studies, particularly those that address environmental change as well as distributions of resources, are included

here as an underlying research category. Pollen, plant macrofossils from woodrat middens, faunal remains from woodrat middens, paleontological and archaeological sites, are critical sources of information that underlie most explanations of archaeological phenomena, and should be recognized as of high archaeological importance whether they are associated with cultural materials or not.

1. CHRONOLOGY: HOW LONG HAVE PEOPLE BEEN USING SLOAN CANYON AND THE NORTH MCCULLOUGH RANGE?

Determining the age of archaeological materials is a necessary first step in the interpretation of individual archaeological finds, synthesis, and regional interpretation. The currently available sites, assemblages, and artifacts from Sloan Canyon NCA for which age has been estimated indicate people have been using the area only during the late prehistoric and historic periods (Duke et al. 2004). However, the archaeological record elsewhere in southern Nevada has provided evidence that people were present as early as the end of the Pleistocene (approximately 10,000 years ago) and have been continuously present in varying numbers and habitats in the region for the entire Holocene (Grayson 1993; Pippin 1995).

Determining the chronology of use of any area in the Intermountain West is difficult due to the paucity of materials from which age of artifacts, and by association assemblages and sites, can be determined. The preferred material for dating is anything organic from which age can be estimated by radiocarbon analysis. Radiocarbon analysis is the preferred dating method because many of the issues with other dating methods are well known and have been addressed; most laboratories that do radiocarbon analyses have standardized ways of dealing with contamination, calibration, and other sources of error. Consequently, placing new archaeological materials into an existing regional sequence is relatively straightforward. Unfortunately, organic materials amenable to radiocarbon analysis are rare outside caves and rockshelters in most parts of the Intermountain West, including Sloan Canyon NCA. One of the most important issues that should be addressed in future archaeological studies in Sloan Canyon NCA is determination of whether the apparently short period of human presence is real or a result of taphonomic processes that have effectively hidden all earlier evidence. Because organic materials do not preserve well outside the protected environments of caves and rockshelters, it is important that all such locations that contain the potential for recovery of stratified artifact assemblages with associated organic materials be preserved for archaeological investigations.

Other methods of determining the age of archaeological materials are less precise and have sources of error that are not as well known and do not have standardized protocols for assessing errors and calibrating for their effects. These methods, however, have been used to determine the relative placement of the Sloan Canyon NCA archaeological record into the local and regional sequence. Methods that have yielded useful chronologies in southern Nevada include artifact typologies and obsidian hydration analyses.

Artifacts that have been classified into the most useful types for chronology building are projectile points and pottery, but even the presence of ground stone is often used to provide a gross estimate of the age of a site. Importantly, the typologies for both projectile points and pottery were developed in areas outside southern Nevada, in environmentally different settings where there is no reason to believe cultural development proceeded at the same pace or in the same directions as in Sloan Canyon NCA. The projectile point chronology was developed in the western Great Basin (Heizer and Hester 1978; Thomas 1981) where lakes and marshes were abundant throughout most of the Holocene, and contact with peoples on the west side of the Sierra Nevada clearly was common. A similar typology has been developed for

the eastern Great Basin (Holmer 1986). Differences between the western and eastern projectile point chronologies attest to the necessity of developing a similar sequence for the southern Great Basin-Mojave Desert area. The pottery typologies were developed in the Southwest where both dry land and irrigated agriculture was possible and contact with peoples of Mesoamerica occurred. Because both the subsistence technology of a people and their contact with neighboring peoples can greatly affect the material culture inventory and its stylistic attributes, there is no reason to believe that the currently available dates for individual projectile point types or pottery styles are directly applicable to the archaeological record for Sloan Canyon NCA.

Obsidian hydration is a method of assessing the relative age of artifacts made of volcanic glass and has been investigated in various parts of the Intermountain West for a number of years, with varying degrees of success. It has been viewed as having great promise for archaeological studies because it could potentially be used on any piece of obsidian that was clearly broken by people; not only formed tools such as projectile points but debitage and assayed cobbles as well. However, numerous studies have shown that obsidians from different sources have different hydration rates, and that hydration rates of obsidian from the same source will vary depending on the immediate conditions of the environment in which it has lain since it was broken. Therefore, before obsidian hydration can provide a useful source of age determinations for the Sloan Canyon NCA artifacts, a local sequence for the common obsidians must be developed. Obsidian studies should be encouraged as a means of obtaining temporal data (via hydration analysis) that can provide age estimates of events in the NCA, and the movement of people (via XRF analysis), as in many parts of the Desert West chronologically sensitive materials are rare.

Prehistoric pottery offers another, extremely useful, source of chronological data for archaeological sites where materials amenable to radiocarbon analysis are not present. For the most part the chronological data comes from stylistic traits of the pots. However, in Sloan Canyon NCA the absence of residential sites makes it unclear whether pottery was being made locally or transported from some distance, which begs the issue of time-lag in estimating the age of sites based on typologies of ceramic styles developed from other areas. Knowing the source of the pottery's clay could provide essential data for tracking population movements and calibrating the age estimates based on stylistic sequences from other areas where pottery is abundant. Neutron activation analysis studies of the fabric of pottery sherds and clay sources in and around Sloan Canyon NCA should be encouraged to address the issue of where pottery was being made.

Developing and testing additional methods of assessing the age of archaeological materials found in desert environments is a topic that should receive attention in future archaeological research projects. Some promising methods include optical luminescence of sediments containing archaeological materials, and growth ring analysis of desert shrubs found in deposits and growing on sites. Petroglyph dating is particularly challenging for rock art chronometric studies. The thematic research design described later in this Appendix for rock art reviews current methods most likely to apply to Sloan Canyon NCA and their data needs (Table 2).

2. LAND-USE: WHAT KINDS OF ACTIVITIES BROUGHT PEOPLE TO SLOAN CANYON AND THE NORTH MCCULLOUGH RANGE?

Most prehistoric peoples of the Intermountain West were mobile foragers. They moved seasonally to areas where the greatest abundance of food resources could be found. However, small groups would also travel significant distances to sources of materials necessary for making tools (lithic quarries), and

possibly to sacred places as well. Sloan Canyon NCA contains a variety of different landscape types. Each affords a different suite of resources that could potentially have attracted prehistoric peoples. The archaeological survey already done has provided baseline information regarding use of the different landscape types.

Although the currently available survey data provide a reasonable assessment of prehistoric land-use in Sloan Canyon NCA for the last 1500 years, the archaeological potential of area has barely been tapped. Given the rugged formation of the North McCullough Range, the possibility that unrecorded caves and rockshelters exist is significant. Such sheltered sites could provide important data for both chronology building (see above) and for reconstructing past land-use patterns, particularly in regard to subsistence activities, procurement of tool materials, and sacred activities. Sheltered sites throughout the Great Basin have yielded cached tools (nets, fish hooks, grinding stones) and objects of inferred ceremonial significance (e.g., feather bundles) (Jennings 1957; Loud and Harrington 1929). Nearby Gypsum Cave (Harrington 1933) contained a number of arrow shafts that, while not as old as originally thought, provide evidence that prehistoric people were visiting the cave and using it as a place to store hunting equipment that they did not immediately need, but had prepared in anticipation of future needs. Sheltered sites in Sloan Canyon NCA could provide critical data for reconstructing past lifeways.

Sheltered and buried sites can also provide invaluable evidence of past land-use practices in the form of faunal and floral remains. Although these organic materials are seldom found during inventory, the potential for them is often noted in areas where there is the potential for deep deposits that can contain them. Excavation at sites that have potential for having deep deposits recorded during inventory (Duke et al. 2004) could also provide evidence of human presence prior to the well-documented 1500 years found on the surface.

Other evidence of land-use can be found in the simple distribution of particular kinds of sites in different habitat types. Although three of the types of sites in the Duke et al. (2004) typology, and isolated finds in general, are not considered eligible for listing on the National Register of Historic Places, the mere occurrence of archaeological materials is critical information for developing an understanding of land-use through time.

3. TECHNOLOGICAL ORGANIZATION: WAS TECHNOLOGY ORIENTED TOWARD THE LOGISTICAL REQUIREMENTS OF TIGHTLY SCHEDULED, PLANT-FOCUSED SUBSISTENCE ACTIVITIES?

Throughout the Great Basin, in fact throughout the Intermountain West, late-period sites are more abundant than earlier sites, and late-period assemblages reflect greater use of seasonal resources through the more common occurrence of ground stone implements (i.e., milling stones and handstones assumed to have been used to grind seasonally available seeds) and reduced frequencies of hunting related tools (i.e., projectile points, debitage, and other flaked stone tools assumed to have been used to hunt rabbits and artiodactyls). Important research questions that should be addressed in future archaeological projects in Sloan Canyon NCA regarding the use of different technologies are:

- Whether the differences are temporal (i.e., more hunting tools in earlier sites, more grinding tools in later sites)

- Whether different technologies are found in different, but contemporaneous, settings characterized by different edible resources (i.e., more hunting related tools in the McCullough Range where mountain sheep are more abundant, more milling stones in the canyon where there are more edible plant resources)

- Whether different technologies are found in different, but contemporaneous settings characterized by different toolstone resources (i.e., more chipped stone hunting tools and debris near quarries where knappable stone could be obtained, more ground stone implements near sources of appropriate materials for grinding)

Three important, and closely related, issues must be addressed before the differences in technologies can be interpreted in terms of human behavior. First, because datable materials are rare in almost all sites, are sites with milling stones in the artifact assemblages being identified as late-period sites due to the presence of the milling stones? If so, the reasoning that milling is a late-period technology that replaces an earlier emphasis on hunting is circular. Sites hypothesized to be late because they contain ground stone implements must be independently dated using a method other than typological similarity to ground stone tools dated elsewhere to the late period. Radiocarbon analysis of plant materials floated from the matrix in which milling stones are found is one possibility for obtaining an independent date. Association with other typologically datable artifacts (i.e., potsherds, projectile points) is another (see previous research issue for more detailed discussion of dating issues).

Second, because early sites are rare, does the distribution of early sites reflect the manner in which people used the landscape, or is the known distribution of early sites biased by the likelihood of archaeological discovery or geological processes that have allowed sites to be relatively well preserved in some environments, poorly preserved in others, and completely erased in still others? Because late sites with milling technology tend to occur in depositional environments where sediments are deep enough to permit growth of plants that can be harvested for their seeds, and hunting sites are more likely to be dispersed in more rugged uplands where animals such as bighorn sheep are more likely to be found, hunting sites are more vulnerable to dispersion by natural processes and are less likely to be recognized during a sample inventory. If they occurred in the intervening valleys and drainages they are likely to be buried by the sediments that accumulate in lower elevation settings.

Third, most datable sites found during inventory are late-period sites. It is reasonable to assume the resources available in the environment today are representative of those available to the prehistoric inhabitants of the area. However, recognizing that there may have been earlier use of the area, it is important to know the environmental changes that have occurred, especially those that affected important prey animals and plants that produce edible seeds, and which resources were being used most frequently at different times.

4. POPULATION INTERACTIONS AND MOVEMENTS: CAN DIFFERENT ETHNIC GROUPS BE RECOGNIZED IN THE ARCHAEOLOGICAL RECORD OF SLOAN CANYON NCA AND THE NORTH MCCULLOUGH RANGE?

The origin of Great Basin peoples has been a significant research issue for archaeologists since the early 1920s when it was first recognized that the New World had a long prehistoric period, and that prehistoric peoples differed from the ethnographically recorded peoples of North America. The relationships of Great

Basin peoples with peoples from adjacent regions have also been important issues for archaeologists and ethnologists as culture areas began to be defined. Incursions of people from both the Southwest (Puebloan and Patayan) and from southern California (Numic) have been hypothesized for the late Holocene in the southern Great Basin. It commonly assumed that the horticultural people from the Southwest left when climatic conditions returned to more xeric conditions and dry land farming was no longer tenable, leaving the region once again to Numic peoples, descendants of whom remain in the region today.

The hypothesized population replacements and incursions lead to three interrelated issues for understanding the prehistory of Sloan Canyon NCA: 1) what archaeological evidence will allow recognition of the different groups, and do those kinds of evidence occur in Sloan Canyon NCA? 2) Did the population shifts really occur, or are artifacts generally associated with non-native cultures evidence of trade rather than population movements? 3) If the population replacements occurred, what gave one group of people a competitive advantage, or did two or more cultural groups coexist during times when there were population incursions from adjacent regions?

Data from the inventory provide generally accepted evidence that different cultural groups may, in fact, have been present in the Sloan Canyon NCA, although most of the archaeological record in the area is characteristic of much of the archaeological materials found throughout the Holocene in the Great Basin and during the Archaic Period in the Southwest. Three kinds of artifacts indicate extensive trade or population movements: pottery sherds (generally associated with Puebloan and Patayan cultures from the southwest, as well as the indigenous Southern Paiute brownware); obsidian (has been identified from widespread sources); and beads (made from Olivella shells that live in coastal water, but are found in Californian sites to the west, Hohokam sites to the east, and Great Basin sites to the north).

5. ROCK ART: WHO MADE THE ROCK ART IN SLOAN CANYON AND ELSEWHERE IN THE NCA, WHEN AND WHY?

Specific stylistic issues that relate to the ethnic identity of the prehistoric peoples who created rock art (particularly the emergence of Fremont and Puebloan cultural systems, and the dispersal of the Numic language family) have been discussed by Bettinger and Baumhoff (1982), Quinlan and Woody (2003), Schaafsma (1980, 1994), and Turner (1963).

Social Functions and Symbolism—The first systematic study of Nevada's rock art was Steward's (1929) analysis of the spatial distribution of rock art styles and themes in California, Nevada and Arizona. Steward (1929:225) rejected the idea that Nevada's rock art was a form of "art for art's sake" and argued that it was the residue of culturally meaningful practices in the past, although its precise meanings and functions were unclear. Steward's stylistic analysis was influential in shaping the terminology used to characterize schematic imagery, as well as identifying an important research theme—i.e., the balance between schematic and naturalistic imagery in rock art assemblages as a characteristic of stylistic variation. This stylistic classification was subsequently elaborated by Heizer and Baumhoff (1962), who added a temporal dimension, and has remained in broad use, despite some critique (e.g., Hedges 1982), minimally shaping researchers' general terminology and chronology. The relative balance between representational and abstract imagery is still used to define style types and has implications for understanding the social functions and interpretation of rock art (Bradley 2000; Layton 2000; Quinlan and Woody 2003).

The interpretation of rock art social functions and symbolism is characterized by divergent theories and opinions, in part because of the lack of direct ethnographic information relating to its production and uses (Quinlan 2000; Quinlan and Woody 2003). The rock art of Nevada has been interpreted from the general standpoint of hunting magic (Heizer and Baumhoff 1962), shamanistic (Whitley 1994), and landscape approaches (Woody 2000).

Rock art sites within the Sloan Canyon NCA may have considerable research potential to address questions of social structure, ritual, ethnicity and land-use in the Archaic, Puebloan and Fremont, and Prehistoric periods (Duke et al. 2004; Holmes et al. 2002:6; Lyneis 1982; White 2002:10). Themes, content, style and landscape context, all inform questions of site function and past meaning. Landscape context and portrayal of game animals can be used to determine whether Sloan Canyon's rock art is associated with hunting strategies, in the form of hunting magic (Heizer and Baumhoff 1962) and/or to educate young hunters about game animals (Matheny et al. 1997; Mithen 1988). Domestic archaeology and evidence of the daily routines of hunter-forager life occurring in association or close proximity to rock art sites could indicate that it was used in community-wide social practices (Quinlan and Woody 2003). As rock art interpretation has been skewed by the under-reporting of rock art's domestic associations, this spatial patterning at Sloan Canyon NCA offers an important corrective (Duke et al. 2004). Identifying prehistoric scratched art that defaces earlier rock art has been used to recognize the spread of Numic peoples through the Great Basin (Bettinger and Baumhoff 1982). Sometimes scratched art seems to embellish earlier art and may have been intended as a form of retouching (Woody 1997, 2000). Dating the advent of scratched art and its possible function as later retouching are important research themes rarely addressed in Great Basin rock art research because of the lack of data of sufficient quality. In addition, a qualitative and quantitative analysis of the themes and styles of Sloan Canyon NCA rock art imagery could address the expression of prehistoric ethnicities because of the ways cultural identities are potentially expressed through graphic arts (Layton 2000:179-181). Such data would also be of value for making evaluations of significance of rock art panels and/or sites.

Dating Rock Art—Estimating the age of rock art is important for establishing a panel's entitlement to protection under ARPA and other statutes, and is an important research issue in its own right. Although it is sometimes claimed that only direct dating provides the kind of evidence accepted in court for age determinations, this is not necessarily the case. Nearly all scientific dating techniques applied to petroglyphs are experimental and likely to be challenged as such in court. However, traditional stylistic dating techniques, whilst providing relative dates and broad estimates of age have been accepted in court cases trying ARPA violations of rock art in Nevada (Woody 2005).

Scientific (or direct) dating techniques usually require intrusive extraction methods, even if only microscopic quantities are required for analysis (Table 2). Therefore, their application usually requires consultation with Native American tribes. These techniques are expensive and only pinpoint maximum and minimum dates for the rock art design tested, rather than the assemblage as whole. In contrast, relative dating techniques are non-intrusive and relatively cheap to perform (Table 2). They only produce broad age estimates and general sequences of development. They are simple to apply, often requiring only a keen sense of observation and the recording of visual levels of repatination using a Munsell rock color chart. They have the significant advantage of paying careful attention to the physical condition of rock art motifs, reporting data useful for making an assessment of potential site impacts.

Duke et al (2004:120) used relative dating techniques to suggest that the rock art sites within the Sloan Canyon NCA date from the Middle Archaic into the ethnohistoric past. Their assessment is based on the visual appearance of repatination, themes portrayed in rock art, and archaeological evidence dating the occurrence of other activities in Sloan Canyon NCA. A general temporal sequence is proposed based on the growing frequency of representational motifs with time (2004: Table 42). Further study and the

inclusion of the rock art from the main Sloan Canyon Petroglyph site (26Ck2420/2621) in analysis has the potential to further refine this relative chronology.

Table 2. Rock Art Dating Methods and their Possible Relevance to Sloan Canyon NCA.

Method	Comments	Sources
Direct Dating Methods		
1) Radiocarbon analysis of mineral accretions (and/or their inclusions) that cover rock art	Provides minimum and maximum ages and has been used to date organic inclusions in desert varnish; it may have potential at Sloan Canyon NCA	Bednarik (2001, 2002); Watchman (1996, 2000)
2) Lichenometry—a calibrated dating technique using lichen growth rates to estimate ages	Rarely used, is only precise up to 500 years, and only provides minimum and maximum age estimates	Bednarik (2001, 2002)
3) Microerosion analysis—attempts to quantify weathering effects that can only be identified microscopically	Its use is restricted to erosion-resistant rocks, its accuracy is currently poor, and has rarely been used	Bednarik (2001, 2002)
4) AMS dating of organic materials contained in the residues of paint pigments	Its extraction techniques are intrusive and pictographs are rare at Sloan Canyon NCA	Chaffee et al. (1993); Watchman and Cole (1993); Watchman and Lessard (1993)
5) Cation-ratio dating—attempted to calibrate the leaching of soluble cations of rock varnish relative to the supposedly stable titanium content	This technique has now been abandoned by its inventor and never produced any accepted dates	Dorn (1983, 1996); Watchman (1992)
6) Cosmogenic radiation nuclides—determines maximum rock exposure ages by measuring the presence of cosmic ray-caused radiation products in rock	Does not actually date rock art, is poorly calibrated, and has produced unreliable results when applied to archaeology	Bednarik (1998)
7) X-Ray Fluorescence dating—an experimental method that measures the chemical thickness of desert varnish to produce an age estimate	Each site tested requires individual calibration. It is non-intrusive and is a practical way of testing all the designs at a site. Could be of potential for Sloan Canyon NCA	Lytle et al. (2004)

Method	Comments	Sources
Relative Dating Techniques		
1) Iconographic dating—dates rock art by identifying dateable subjects in its imagery	Restricted to representational designs and is most useful for dating contact period and post-contact period imagery—one way of identifying graffiti	
2) Stylistic dating—observable differences in style are related to different times or cultural identities	Useful for broadly determining the age and general sequence of rock art assemblage, but stylistic differences are also functional and therefore can not be simply equated with ethnic identities or chronological periods	Layton (2001:315); Ucko (1987)
3) Technique—useful for identifying graffiti produced with modern tools and materials (e.g., spray paint, knives)	The limited range of techniques that exist to make rock art may have been in contemporaneous use and so can not be used to estimate the age of prehistoric art	Bednarik (2001, 2002)
4) Excavation—estimating the minimum age for rock art that is covered by datable deposits (either through exfoliation or sedimentation)	Provides a terminus ante quem for rock art that is covered or has exfoliated into the dateable deposit. No such cases have been	Cannon and Ricks (1986); Ricks and Cannon (1993)

Method	Comments	Sources
Relative Dating Techniques		
	reported for Sloan Canyon NCA	
5) Proximity to other archaeological resources—provides potential evidence of rock art's continuing use even if it does not date the act of production itself	Relates rock art's use-life to other activities—it only provides the most general indications of rock art's age	Bradley (2000); Quinlan and Woody (2003)
6) Visual appearance of weathering and/or repatination—allows broad age estimates to be made—it is best used in combination with superimpositioning	This method could be used at Sloan Canyon NCA as superimpositioning and differences in levels of repatination are visually apparent	
7) Superimpositioning—discriminates older from more recent motifs, allowing a general sequence to be delineated	Works best when combined with a consideration of visual levels of weathering/repatination	Woody (1997)

Motif Typology/Key—To facilitate recording, evaluation and quantitative and qualitative statistical assessment of the rock art sites contained within the Sloan Canyon NCA, it is suggested that a motif typology or key is developed. The typology used by Duke et al. (2004) should serve as the basis of such a motif typology but with modifications and expansion as necessary (see also Nevada Rock Art Foundation 2003 [NRAF]). In constructing such a motif typology, interpretive labels should be avoided for all but the most readily identifiable subjects portrayed in a representational or naturalistic manner. This motif typology will enable rock art site types to be more securely defined and allow land managers to prioritize protective and conservation measures accordingly. Anthropomorphic and zoomorphic types should be subdivided into naturalistic and schematic types (allowing Basin and Range Tradition style simple stick figure types to be discriminated from elaborate Puebloan or Fremont-style types etc.).

Tortoise Cairns—(Duke et al 2004:107) reported the discovery of two human-made tortoise/turtle cairns located on a possible prehistoric trail on the rim of the canyon in Middle Canyon II. These are a unique feature, not represented elsewhere at Sloan Canyon NCA, or anywhere else in Nevada. Further research should attempt to elucidate the age of this unique feature. They were not observed in a previous survey that reported the trail they are located on as probably modern (White 1998) raising the possibility that they are a recent addition. Examination of previous survey photography or old tourist photographs may help resolve their age. If they are found to be modern it should be considered whether to dismantle these cairns to discourage copycat cairn construction and restore the site to its original condition.

6. ETHNOGRAPHIC CULTURAL LANDSCAPE

The ethnobotany, rock art, sacred lands, and lifeways of Native American people who used the area are not well documented. Some Native Americans believe the land, including that of the Sloan Canyon NCA, is alive. The Indians living near Sloan Canyon NCA have rituals, songs, and other activities that are associated with the land in general. A Chemehuevi elder commented, "It seems awkward to put these things in writing; however, it is important to document that the place has been visited and should be preserved." The collection of this information would greatly enhance the Bureau of Land Management's (BLM) ability to focus on Native American interpretation of the NCA. It would also aid the BLM in continuing consultation with the tribes throughout the RMP/EIS process and in the ongoing management of resources within the NCA (Bengston 2004). Some potential areas that could be incorporated into an overall ethnographic cultural landscape study of the Sloan Canyon NCA include: ethnographic/ethnohistoric study of the North McCullough Range within the boundaries of the Sloan Canyon NCA, an ethnographic study of the Sloan Canyon Petroglyphs Site (26Ck2420/2621), focusing

individually on the Southern Paiutes, Chemehuevis, Mojaves, Hopis, and Hualapais; and an ethnobotanical study of Sloan Canyon proper, focusing on the Southern Paiutes.

7. RESEARCH ISSUES FOR THE HISTORIC PERIOD

The historic period in the Great Basin is marked by a number of colorful and adventurous themes including trail blazing, mining, and railroad building. Associated industries included the introduction of domestic stock (particularly sheep and cattle) to support the other historic activities, and development of other businesses that grow up around mining, railroads and stock-raising communities. In Nevada, these businesses routinely included saloons, casinos, and brothels. Although there are numerous sites attesting to all of these activities nearby in southern Nevada, the only historic resources recorded during inventory (Duke et al. 2004) related to mining: numerous mining claim cairns and a small group of prospects, adits, shafts, habitation features, and road traces attributable to the Quo Vadis Mine which was in limited production in 1915, a placer mine at the south end of the central valley, an historic road, and a series of concrete dams built in 1942. No evidence of other historic activities was recorded. Future research should pay special attention to documenting other early historic activities in the area that could reflect other uses of the area by non-Indian peoples and the consequent interactions between Indian and non-Indian populations.

PART II: A TREATMENT PLAN FOR HUMAN REMAINS AND ITEMS OF CULTURAL PATRIMONY

Burials, associated funerary objects, sacred objects, and objects of cultural patrimony are often present in areas such as the Sloan Canyon NCA, and are of particular concern to local, living Indian peoples as well as being an important record of the presence of people in the area in the past. Their physical remains and any material culture associated with them provide evidence of many aspects of prehistoric lives. Burial places are broadly defined by the Department of the Interior Interagency Resources Division as "a location where the dead are prepared for burial or cremation, or where the remains of the dead are placed" without restriction on the size of the location or the complexity of the site, including the number of individuals interred or otherwise represented. Objects directly associated with burials, objects that at one time were associated with burials, sacred objects (items needed for the practice of traditional religion) and objects of cultural patrimony (objects that have ongoing historical, traditional, or cultural importance central to the Indian tribe itself, rather than to an individual tribal member) are included in the guidelines for treatment of human remains (Potter and Boland 1992:1-2).

Concern of Native Americans regarding the appropriate and respectful disposition of burial remains and objects has led to the passage of the Native American Graves Protection and Repatriation Act of 1990 (NAGPRA, P.L. 101-601), which defines the rights of Indian Tribes and Native Hawaiian organizations regarding human remains, funerary and sacred objects, and other culturally significant objects for which they can demonstrate lineal descent or cultural affiliation. NAGPRA is intended to protect Native American graves and their related items and to control their removal. It encourages avoidance of archaeological sites that contain burials and makes Federal agencies responsible for consulting the appropriate tribes when such sites are encountered during planned excavations or inadvertently.

Although legislation exists, particularly in NAGPRA, regarding the protection and disposition of burials and objects associated with them, detailed guidance on identifying, evaluating, and documenting archaeological sites that contain burials and appropriate methods for studying them have not been issued. Burial places are recognized as reflections of cultural values and practices that contain important information about past people. Objective evaluation is not always possible because burials are often viewed with reverence and sentiment by families and cultural groups descended from the interred individuals. Consequently, special requirements are included in the evaluation of cemeteries and graves. Burials are not considered eligible for the National Register of Historic Places unless they meet special requirements. The specialized nature of investigation of burials, ongoing debates over the appropriate treatment of burial sites, and evolving policies and procedures relating to NAGPRA have all contributed to the lack of standardized guidance.

The complexity of the issue of treatment of human remains and items of cultural patrimony is vividly expressed in the statement of the Society for American Archaeology (1999) concerning the treatment of human remains. The SAA board adopted a formal statement regarding the treatment of human remains in May 1986 and reaffirmed it in March 1999. The SAA, like the DOI, opposes a Federal legislation that imposes a uniform standard for determining the disposition of all human remains due to the diversity of beliefs and interests in burial customs. The SAA acknowledges an ethical responsibility to advocate and aid in the conservation of archaeological data, recognizing that mortuary evidence is an integral part of the archaeological record that informs directly upon social structure and organization, and upon aspects of religion and ideology. They further recognize that human remains provide unique information about demography, diet, disease, and genetic relationships among human groups. In the statement it is argued that "research in archaeology, bioarchaeology, biological anthropology, and medicine depends upon responsible scholars having collections of human remains available both for replicative research and

research that addresses new questions or employs new analytical techniques." However, the SAA also recognizes the diversity of cultural and religious beliefs regarding the treatment of human remains and that there are legitimate concerns about the treatment and disposition of human remains that conflict with legitimate scientific interests, and that those concerns must be recognized and respected. As with the DOI guidance for consultation with tribes, the SAA encourages close and effective communication between researchers and those communities that may have biological or cultural affinities to human remains. Conflicting claims concerning proper treatment and disposition of particular human remains must be resolved on a case-by-case basis through consideration of the scientific importance of the material, the cultural and religious values of the interested individuals or groups, and the strength of their relationship to the remains in question.

The following guidelines have been developed for the treatment of human remains found in the Sloan Canyon NCA by integrating the principles expressed in the NAGPRA regulations, concerns expressed by Indians, the values expressed in the SAA regulations, and guidelines for protection developed by the Bureau of Land Management.

Human skeletal materials, associated funerary objects, sacred objects, and objects of cultural patrimony must at all times be treated with dignity and respect. Regardless of whether they are left in situ or removed for protection, study, and reburial. Burials, including associated objects, sacred objects, and objects of cultural patrimony found in the Sloan Canyon NCA will be treated with utmost dignity and respect.

Commercial exploitation of human remains is abhorrent. Further, unauthorized removal of any archaeological materials on the Sloan Canyon NCA, including human burials and the matrix in which they are contained is illegal. Unauthorized individuals caught disturbing human burials on the Sloan Canyon NCA will be prosecuted to the fullest extent of the law. Further, any evidence of unauthorized tampering with human burials will be pursued with due diligence to apprehend and prosecute individuals who disturb burials, their associated objects, sacred objects that were placed in the NCA as part of a ceremony or for storage, or any object of cultural patrimony. This includes, but is not restricted to, human burials, rock art, cairns, objects cached in rockshelters, and objects buried in the ground.

All human remains and associated funerary objects, sacred objects, and objects of cultural patrimony found on the Sloan Canyon NCA should receive appropriate scientific study. This stipulation can be accommodated with minimal conflict with tribal concerns if handled in a timely, respectful, and conservative manner. Context description, inventory and metric description, and graphic documentation are the minimal data that must be collected for all human remains, associated objects. More advanced analyses such as radiocarbon dating, DNA and isotopic analyses must be negotiated on a case-by-case basis.

1. DISCOVERY SITUATIONS

In the event that human remains or associated cultural materials are found inadvertently during construction of trails, guzzlers, or other authorized activities, the party responsible for the discovery will cease the activity in the area of the discovery and make a reasonable effort to protect the items discovered. They will immediately notify the Sloan Canyon NCA manager and BLM law enforcement by phone (or in person) and in writing, of the discovery. BLM law enforcement will notify appropriate local law enforcement agencies and coroner to ensure that the discovery is not a crime scene. Upon determination that the site is not a crime scene, the authorized officer will implement the BLM/Nevada

SHPO Statewide Protocol and consider the feasibility of redesigning the activity to avoid the discovered items and preserve them in situ. Whenever possible, human remains exposed on the Sloan Canyon NCA will be carefully and immediately covered in the exact location and with the sediments in which they were found until final disposition is determined.

Human remains or items of cultural patrimony found exposed by erosion, activities of animals such as coyotes or bighorn sheep, or during archaeological research, will be immediately and carefully protected from further exposure by the individual(s) making the discovery. The individual(s) making the discovery will follow the notification process above. After release of the site by the coroner or appropriate law enforcement agency, if erosion or disturbance by animals cannot be curtailed in a reasonable manner, it may be necessary to remove the burial to prevent further exposure, disturbance and destruction.

Human remains that cannot be avoided and left in situ due to other land-use activities, or that cannot be protected from exposure by erosion, activities of animals, or other natural disturbances, must be carefully excavated and kept in as intact condition as possible given their present condition of preservation, until they are either reburied or curated.

2. AUTHORIZED ARCHAEOLOGICAL EXCAVATIONS

All archaeological excavations will include a treatment plan for human remains and associated materials specifically designed for the project as part of the Archaeological Resources Protection Act (ARPA) permit application. Interested tribes will be offered the opportunity to review and comment on the plan as part of the ARPA permit process.

3. DISPOSITION OF NAGPRA MATERIALS

If human remains are recovered rather than preserved in situ, efforts will be made to determine the tribal affiliation of the interred individual and the remains and associated objects will be given to the living descendants after appropriate, scientific documentation of the burial and its associated objects. All discoveries of NAGPRA materials will be subject to the current affiliation/repatriation process at the time of discovery. The validity given any claim by an individual or group regarding any particular human remains will depend on the strength of their demonstrated biological or cultural affinity with the remains in question. If the remains can be identified as those of a known individual with biological descendants, the living descendants will be responsible for appropriate permanent disposition of the remains. They may choose to rebury, cremate, curate, or otherwise dispose of the remains. However, if human remains are recovered from the Sloan Canyon NCA and repatriated to living descendants or an affiliated tribe, reburial cannot occur within the boundaries of the Sloan NCA. Vandalism and looting threaten the archaeological record, including burial sites, which necessitates cooperation between archaeologists, descendants, land managers, and others that may have an interest in the past (stewards, etc.). The Bureau of Land Management cannot legally provide protection for any interment outside authorized curation facilities; once they have been removed from the ground they no longer qualify as archaeological sites and are not covered under existing federal laws and regulations.

Once removed from their original burial place, human remains that cannot be clearly associated with a particular tribe and appropriately reburied according to tribal custom will not be reburied in a generic

manner. Unaffiliated human remains will be curated in an appropriate and respectful manner by the Nevada State Museum, Carson City, Nevada. Such materials will be made available for observation and study only to qualified individuals who will continue to maintain a dignified and respectful treatment of the remains. Curated human remains will be accessible only for legitimate scientific or educational purposes; they will not be put on public display.

PART III: A MONITORING PROGRAM FOR SHORT– AND LONG–TERM EFFECTS BY OTHER USES WITHIN THE SLOAN CANYON NCA

1. IMPLEMENT A SITE MONITORING/STEWARDSHIP PROGRAM

Southern Nevada's rock art and archaeology are at acute risk from the rapid urban growth of Las Vegas and increased leisure use of its hinterland. Damage is frequently manifested in the form of vandalism (defacement and graffiti), theft of portable rock art boulders (Holmes et al. 2002:9), and unauthorized excavation. Sloan Canyon NCA contains numerous rock art sites and other archaeological sites that are at risk from unsupervised public visitation. Rock art sites are particularly fragile cultural resources at risk from both environmental and human causes of deterioration, while buried archaeological deposits are at risk from unauthorized excavation or destruction caused by trampling. The monitoring program outlined below is applicable to all archaeological features present in the Sloan Canyon NCA; measures that are specialized to particular site types are indicated.

Site monitors inspect sites for changes in physical condition and identify whether observed changes are the result of natural factors or human intervention. Natural sources of deterioration include;

- Erosion caused by wind, rain, water runoff etc.
- Aabrasion from plants
- Deposition of minerals over rock art panels (the inclusions in these mineral skins can potentially be dated by direct dating methods)
- Exfoliation of rock surfaces from freeze/thaw cycles, water and salt action
- Surface retreat that is in the nature of the rock
- Animal activity (animals walking over rock art may scratch it with their hooves or claws; burrowing rodents may expose buried archaeological deposits etc.) (Loendorf et al. 1998:73-74)

Anthropogenic causes of site deterioration are both unintentional and deliberate. Unintentional impacts that are the result of site overuse, unsupervised visitation or lack of visitor knowledge can include;

- Abrasive dust thrown up by visitors (Gale and Jacobs 1987)
- Erosion caused by visitors repeatedly following the same trails
- Over-visitation resulting in changes to the natural environment of a site (Brunet and Vidal 1989)
- Repeated touching of rock art with hands, resulting in staining, soiling, and wear
- Walking over rock art panels or archaeological deposits
- Air pollution
- ATV users driving over archaeological sites and rock art (Holmes et al. 2002:9)

- Deposition of trash
- Introducing foreign materials in rock art (chalk, charcoal etc.) to enhance photography
- Making rubbings or latex molds of rock art panels (Loendorf et al. 1998:74)
- Rock climbing over rock art panels (Holmes et al. 2002:9)

Deliberate acts of site deterioration can include;

- Graffiti (either directly over, in association or near rock art) that visually mars a site
- Defacement of rock art (deliberate attempts to obliterate it)
- Use of rock art as target practice
- Theft of portable rock art boulders (and also attempts to remove larger boulders by using a rock saw to cut out the motif)
- Unauthorized excavation (Loendorf et al. 1998:74)

Site monitoring or stewardship programs are potentially an effective form of proactive site management that can manage these environmental and anthropogenic threats to site integrity. Because monitoring programs rely on public volunteers, agencies are faced with the problem of administering volunteers and avocational groups for whom few sanctions exist to correct inappropriate behaviors. Volunteers work on their own schedule and do as much or as little as they wish. Site monitors should be regularly monitored by agency staff as stewardship programs provide the perfect cover for looters and a place for looters to obtain information about sites not publicly known. It is for this reason that monitors should never discuss the site(s) they monitor (even to other monitors) and should never give directions to sites.

Effective site monitoring programs require frequent site inspections that are visible to site visitors, staffed by well-trained and enthusiastic volunteers, and adequately supervised by agency staff to make best use of the monitoring information that is thus derived.

Training—Site monitors should be trained in appropriate procedures and relevant background knowledge. They should learn about existing legal protection for archaeological sites (ARPA etc.) and the requirements for successful prosecution of violations. This will help them understand the reasons for what they are doing and the duties expected of them. Site monitors should be instructed in the methods required for carefully reporting changes in the condition of the site(s) they monitor. Monitors should be able to recognize new impacts (environmental or human) at sites (based on a preexisting thorough record of the site), record new impacts using photography and a sketch drawing. Site monitors need to have impressed on them that in no circumstances should they ever attempt to mitigate any vandalism they may observe. Monitors are trained in safety issues—they should never inspect sites on their own and never approach individuals they observe committing a crime at a site. Instead, they should record the actions observed and report them immediately to agency staff.

Monitoring practices—In general it is not desirable for a steward to monitor more than one site, unless they are in such close proximity that it makes sense to do so. Site monitors are expected to inspect their site once every three months—sites at high risk or which are highly visible should be monitored more frequently, particularly at weekends and other periods of peak activity. This can be achieved by either increasing the frequency of inspections individual monitors make, or by recruiting more site monitors for a particular site. Monitors inspect their site for any sign of human visitation (vandalism, graffiti, looters' pits, trash etc.) or natural erosion, and use a preexisting record of the site's condition on which to base their assessments. If they find evidence of visitation they should proceed cautiously—if the site was

visited in the pursuit of an illegal activity then the site steward's presence and actions can potentially contaminate a crime scene.

Changes to the physical condition of the site are carefully recorded by photography (including a photo-board that records site number, date time, etc.), sketch drawings and a detailed written description. A generalized site impact form could be devised to serve this purpose and distributed to monitors. If the change in site condition is the result of illegal activity monitors should not touch anything and retrace their steps before calling law enforcement or agency staff who will record the condition impact in detail. This is why stewards should always carefully inspect a site for signs of disturbance before clearing up modern trash. Any vandalism or graffiti should be carefully recorded in photographs, sketch drawings and sketch maps, and should only be mitigated by a trained conservator under the direction of agency staff.

Monitors are supervised by a site stewardship coordinator (also a volunteer) who is responsible for either a single site or a small area containing many sites. The coordinator provides monitors with the equipment necessary for them to carry out their tasks—a camera (disposable is acceptable), a photo-board, measuring tapes, drawing materials, notebooks and any necessary agency forms). These materials can be stored in a box that is taken into the field by monitors and returned to the coordinator at the end of the site inspection. Monitors must check-out and check-in with the coordinator before making their inspection and upon their return. The coordinator schedules the inspection rotation, assigns sites to monitors, collects receipts for reimbursement from monitors, and reports directly to the agency staff overseeing site monitoring.

In addition, the BLM will consider the feasibility of remote site monitoring through the use of concealed video cameras. This should be considered for areas of highest archaeological sensitivity and where landscape context contributes an air of seclusion that often makes perpetrators feel that they can be undetected.

All Sloan Canyon NCA site stewards will work under the direction of the NCA archeologist, and under a formal BLM volunteer agreement which sets standards, rules, and requirements.

Administration and training providers—The Nevada Archaeological Association (NAA) is the umbrella organization for archaeology site stewardship programs throughout Nevada. It provides training to volunteer monitors and membership of the NAA is not a condition of participation in its scheme. The NRAF provides training and site monitoring schemes that concentrate on the protection of rock art sites. Its monitoring program is open only to its members—volunteers have to join the NRAF before they can receive training or participate in a stewardship program. Both the NAA and NRAF liaise with the Clark County Heritage Resources Coordinator (a Southern Nevada Public Land Management Act [1998] funded position) who is responsible for overseeing site stewardship programs in Clark County.

2. CONSERVATION GUIDELINES

It is suggested that conservation of rock art sites should involve consultation with a professional rock art conservator. The very specialized knowledge and experience of rock art conservators allows them to: a) understand the structures and properties of a work; b) apply scientific knowledge to the conservation treatment; and c) perform procedures that minimize the loss of cultural material (Odegaard 1999). Conservation procedures adopted are carefully tailored to the needs of individual sites—one solution does not fit all sites or even all panels at the same site (Dandridge and Kane 1999:29). A suggested

conservation and mitigating process (once a conservator's services have been obtained) that could be followed is;

- Carry out a condition assessment of the site
- Conservator advises on the possible risks of proposed treatment measures
- Consult with Native Americans regarding their concerns about the proposed treatment
- Document the area to be cleaned before treatment
- Fully document the treatment used
- Always use the least aggressive treatment first before other options are explored
- Fully document the condition of the area after the treatment is finished (this allows comparison of the finished condition of the area with its condition prior to treatment)
- Monitor the condition of the area on a regular basis after treatment is completed (this allows problems caused by treatment to be identified quickly and before they cause further damage. If mitigating graffiti or other vandalism it is important to monitor the site regularly in case vandals try to restore their vandalism) (Loendorf et al. 1998:75)

Graffiti is usually removed or mitigated because it is seen as encouraging future acts of vandalism by "communicating that such acts are condoned" (Griswold 1999:42; Howard and Silver 1999:36). The pressure on conservators to remove graffiti is strong because the longer an applied material remains on the surface and exposed to the elements, the harder it is to remove (Dean 1999:22). However, the consequences of well-intentioned but un-informed efforts to remove graffiti are potentially as damaging as the original vandalism it is intended to mitigate (Dean 1999:23).

Visual reintegration of graffiti should only be attempted by a trained professional under the direction of agency staff. Additive (e.g., spray paint) and subtractive (e.g., scratching) graffiti pose different problems of mitigation and require different solutions (Griswold 1999:41). Scratched graffiti can be treated by reducing the contrast between the light colored graffiti and the surrounding surfaces. However, it is virtually impossible to completely eliminate scratched or incised letters or shapes by in-painting them as "they will always be picked out by the careful eye on close inspection, no matter how well the paint matches the original surface" (Griswold 1999:45). Some conservators believe that camouflaging or reversing graffiti by in-painting should only be used as a last resort because at best it only minimizes the appearance of graffiti and at worst gives graffiti "a venerable looking patina of "age"" (Griswold 1999:45).

It is suggested that removing or mitigating graffiti or other defacement that directly covers rock art should only be attempted by a professional conservator under the direction of BLM agency staff (Loendorf et al. 1998:76).

3. PUBLIC EDUCATION

Native American interpretation of cultural and natural resources should be included in public interpretation programs and media, in addition to archaeological interpretation of Sloan Canyon's archaeological features. A Native American perspective could include interpretations of the rock art, archaeology, plant resources and other features of interest at Sloan Canyon NCA. Native American interest in such a program was expressed during the ethnographic assessment (Bengston 2004). Continuing consultation with Native American tribes would be one way of achieving this indigenous participation in interpretive programs and the BLM has already hired an American Indian Coordinator/Lead Environmental Education Specialist to assist in this effort.

Public education could be attempted to preempt deliberate or unintentional damage to cultural properties. The most commonly applied public education tool is the strategic placement of signs. Signage is not endorsed at remote or inconspicuous sites as their reduced visibility offers them a measure of protection that would be reduced by the erection of signage (Jameson and Kodack 1991:238). Erecting signs will highlight fragile cultural resources and increase their visibility to potential vandals and/thieves. While signage is not reported to usually result in an increase in on-site vandalism, the sign itself often becomes the focus of vandalism (Jameson and Kodack 1991:240). Signage should be monitored regularly and replaced for damage as necessary.

Signage can be erected in the Sloan Canyon NCA to correct inappropriate visitor behaviors and would not conflict with its status as an NCA or Wilderness Area. Sloan Canyon NCA is already well-known and the levels of site visitation are expected to increase—signs, if erected, would not be making more visible a currently inconspicuous cultural resource. It is a routine BLM practice to erect signs that identify federal lands and their accompanying archaeological sites as a law enforcement measure (Jameson and Kodack 1991:241-242). The absence of signage can make ARPA violations difficult to prosecute—also, protection statues U.S.C. 641 (theft of government property) and 18 U.S.C. 1361 (destruction of government property) are easier to enforce when a site is signed (Jameson and Kodack 1991:243).

Messages on signs are most effective when they describe the importance of the cultural resource, why it is fragile and irreplaceable, provide information of legal penalties, and end with an upbeat message (Jameson and Kodack 1991:243).

Visitor centers can serve as the locus for public education and need to be placed effectively so that they promote and interpret sites which are protected from visitors, and through which they must pass before experiencing the cultural resources. A visitor center could be used to monitor visitor numbers by housing a register. Interpretive kiosks could be placed at each entrance to the NCA. These should advise visitors on correct site etiquette, describe the laws and enforcement measures that protect the cultural resources they will encounter, and outline their cultural value to Native Americans and archaeological interpretation. They could also contain a visitor register.

Site tours are a common educational technique that can successfully manage public curiosity about archaeological sites in a manner where their behavior can be closely monitored. It is also a way of distracting public attention away from vulnerable sites or those that have little or no monitoring in place to protect them. Public tours need to be carefully managed because they can result in overcrowding at sites, leading to increased erosion of trails and abrasive dust being blown onto the rock art panels (Gale and Jacobs 1987:231-232). The size and frequency of public tours, if implemented, should be monitored for their impact on trails and archaeological sites, and modified accordingly if related increased erosion and/or deliberate damage are observed.

Protective measures that obstruct photography should be avoided where possible to remove a possible cause of public dissatisfaction that could lead to them being ignored or challenged by certain users " who will take the opportunity to vandalize or destroy features meant to protect a site" (White 2002:34). Educational devices such as signage and trail guides should be first tried to keep visitors to the trail. If monitoring of land-use reveals that this is ineffective then low barriers could be erected to control visitor circulation patterns.

4. IMPLEMENT A FULL ARCHAEOLOGICAL DOCUMENTATION OF THE ROCK ART SITES

Thorough documentation provides the basis for all conservation and protection measures and is considered an important state goal in the Nevada Historic Preservation Plan (Baldrica 1995). Duke et al. (2004:148) recommend that a detailed documentation of the rock art panels should be done as time and monies allow. This would provide baseline data for management decisions, monitoring programs and enhance the prospects of successful prosecution of ARPA violations. The rock art sites at Sloan Canyon NCA are already suffering the negative consequences of site visitation in the form of graffiti and attempted theft (Duke et al. 2004:51, 145).

White (2002) outlines a three-tiered approach to rock art documentation, where each level is increasingly more intensive and detailed than the last. A Class I documentation consists of completing an IMACS form for each identified site. The most basic components of the site are defined (e.g., features, cultural materials and rock art panels) and a precise UTM and township and range location are taken. A site plan showing the location of major features or concentrations is made. Class II documentation includes the completion of IMACS forms as well as the supplemental IMACS form for each identified rock art panel. Photographs, either 35mm or digital, are taken and site maps showing the location of individual panels are made. Field sketches of each panel should also be completed during this phase. Class III documentation consists of the preceding methods in addition to measured scale drawings of each rock art panel and a precise site plan of the position of rock art panels and their relationship to each other (White 2002:24). White also recommends that a thorough site characterization be completed for each site that includes minimally the following elements;

- Site description including landscape context
- Description of the rock art (type, themes, suggested age and style and production techniques)
- Assessment of the site's condition (including signs of vandalism, unauthorized excavation, presence of trash, natural causes of erosion etc.)
- Determine immediate and potential threats to site integrity
- Provide management recommendations for the protection, education, interpretation and appropriate uses of the site (White 2002:24-25).

The current level of documentation for the rock art at Sloan Canyon is at the level of a Class II survey because scaled field drawings have not been completed for all panels. These are a valuable management tool, particularly when dealing with hard-to-see panels, and they clearly indicate and interpret present and potential threats to image integrity (e.g., spalling, water runoff etc.). For a photographic record to meet existing Nevada SHPO archival standards minimally a black and white negative is required of each panel. In addition, all photographs should include a photo-board recording important contextual information (see

Photo-documentation section below) so they can be used to manage ARPA violations. Photography made during the random and non-random surveys is at a Class I or II level because of the absence of a photo-board and/or color calibration scale and North arrow. It may not be desirable to consolidate the data from previous surveys when making scale drawings to achieve a Class III survey of the rock art sites in the Sloan Canyon NCA. It is frequently difficult and time-consuming to re-identify panels in the field from photographs and some new photography is necessary to bring the photo-documentation to a Class III standard. Consolidation of existing survey data requires harmonization of panel numbering systems (and panels that are renumbered would need to be re-photographed with their new panel numbers). A Class III survey could also take into account the research themes identified in this Appendix and the techniques and data required to address them.

Recording guidelines are outlined in some detail as few published rock art recording protocols exist—most documentation manuals take the form of "gray" literature and are hard to acquire. It is also useful if volunteers are to be used to explain to them some of the rationale underlying non-intrusive methods and why accuracy is important.

Recording Methods—Because some rock art recording techniques currently practiced by rock art researchers are intrusive and/or inaccurate, a suggested recording procedure that is in accordance with the International Federation of Rock Art Organizations (IFRAO) standards is outlined below. Most argument regards the best method for making scale field drawings for which there are three main approaches, summarized below. These are assessed in the light of the IFRAO guidelines for accurate, non-destructive recording techniques (Bednarik 2001). Recording work should be directed by an archaeologist holding a BLM or Nevada State Antiquities permit.

Scale drawings. (a) Drawing from color slides—slides taken in the field are projected onto a wall to be copied onto paper or plastic sheeting. This technique is technically not a field drawing as it essentially is only the tracing of a photograph. Drawings made in this manner are then checked and corrected in the field. This technique is non-intrusive but is inaccurate and time-intensive because re-identifying panels in the field from drawings based on photographs can be a lengthy process, particularly as the scale drawings are drawn to variable scales (the scale is dependent on the position of the photographer when the picture was taken and the size at which the slide was projected onto a wall for the drawing to be made). If the image being recorded is not situated on a flat surface (very common) then the drawing will introduce inevitable distortions caused by tracing an image on an irregular surface from a flat photograph (this is also a problem for direct tracing). Also, when a site contains panels with similar motifs the chances of correcting a drawing against the wrong panel are quite high. All drawing techniques are interpretive and it is therefore always preferable to make scale drawings from the original in the field and not from a secondary medium such as a photograph. The inaccuracy and time-consuming nature of this recording technique make it inappropriate and not recommended.

(b) Direct tracing (as opposed to raised tracing where there is no direct contact between plastic and rock art) is still widely used in some parts of the world, and is used by some recorders in the US (e.g., Lever 2004; Loendorf et al. 1998). This technique involves placing a sheet of Mylar, acetate or other sheet of clear film, over the rock art to be recorded and directly tracing onto the plastic the shape of the motif underneath. It is potentially very time-consuming and results in a 1:1 scale drawing (both significant drawbacks) (Loendorf et al. 1998:61, 63). As this technique involves placing pressure on rock art imagery it is intrusive and potentially damaging, as well as inaccurate (Bednarik 2000; Kolber 2004:2; O'Connor 1999). Rock art researchers advise against any kind of contact with rock art panels ('look, don't touch') as oils from hands touching rock art can be drawn into the rock and contaminate any future dating techniques. Therefore, direct tracing's intrusive nature and inaccuracy recommend against its use in any circumstances. Indirect tracing (i.e., using a frame to support the plastic sheeting) is non-intrusive

but shares the same inaccuracies as direct tracing; it is also very time-consuming and therefore not recommended because a faster and more accurate technique is available (see below).

(c) The least intrusive and most accurate technique for making scale drawings currently practiced involves the use of string grids (Kolber 2004; Loendorf et al. 1998; NRAF 2003). Drawings are made in the field and can be corrected at the same time. A string grid (usually 1 x 1 m in size comprising 10 x 10 cm squares) is laid over the panel to be drawn. This means that the scale used (1:10) is consistent for each drawing—an important consideration for land managers when using drawings to subsequently re-identify panels in the field. The recorder strives to objectively copy on paper only what can be seen on the rock art panel. Any vandalism, graffiti, the removal of (or any attempt at removing) a motif are also recorded, as well as signs of exfoliation etc (NRAF 2003). Drawings include a North arrow, record the rock type, a Munsell color chart reading, the dimensions of the panel and any other applicable comments. If it is not possible to place a string grid over the panel to be drawn (for e.g., the panel may not be accessible) the absence of a scale should be clearly noted on the drawing. No artistic ability is required to make a scale drawing—it is the misperception that artistic ability is necessary that has probably been responsible for the popularity of tracing methods (either from a photograph or directly from the image). This technique is the recommended method for making scale drawings at Sloan Canyon.

Photo-documentation. Photographic techniques should be non-intrusive and non-destructive. Adding foreign materials (e.g., charcoal, chalk, paint etc.) to enhance the visibility of petroglyphs for photography was once a common practice—such practices are now recognized as destructive but some continue to be used. Loendorf et al. (1998:4) report that chalking, at least until 1988, was an approved documentation technique in Colorado and was stipulated on the state's Historic Preservation Office's rock art recording supplemental form. As accurate, non-intrusive photographic techniques exist there is no need for such destructive practices to be employed. However, land managers need to be aware of their existence as some rock art researchers do use destructive techniques despite the damage they cause.

All photographs should contain a photo-board in the picture (otherwise their value is the same as a tourist photograph) (Loendorf et al. 1998; NRAF 2003). Photo-boards provide contextual information that is essential for providing documentation of a site's condition necessary to enable prosecution of ARPA violations and monitor the effects of natural erosion. Information on the photo-board must include: Site Number & Name (if any); Panel Number; Date; North Arrow and IFRAO Color Calibration Scale. Although "white boards and erasable markers" seem convenient, with time and in the hot sun it becomes more and more difficult to erase the marker fully. The black menu board with push-style white plastic letters (more commonly used as open/closed signs for shops) is a good medium for photo boards and is the most clearly visible in photographs (NRAF 2003).

Photographs should be taken of each individual panel and overall panel photographs to show the relationships of panels to each other (Loendorf et al. 1998:38). A photographic log should be kept and should record information such as roll number, exposure number, panel number, etc. The photographic record should minimally include black & white prints (proof sheets are generally made) of every panel—black & white print negatives remain the archival standard of both the Library of Congress and the Department of the Interior (Historic Register) due to their longevity (NRAF 2003). Color slides, color prints and color digital photographs should also be taken—these will be of most use to land managers. Cameras used should always be 35mm SLR and the digital camera should be SLR of least 5 Megapixel resolution. Kodak TMX 100 is an acceptable choice of black and white film. Color slides are of unproven archival quality—Kodak Kodachrome slide film is of good archival quality but Ektachrome can also be used (Loendorf et al. 1998:44). Color prints have a shorter archival life than color slide film and because of the expense of developing they can probably be omitted in favor of digital prints. Digital photographs should be taken in archival TIFF or RAW format—it should be borne in mind that if digital photography is proved in the future to be of greater archival quality than black and white photography, it

may become the new archival standard. Also, as digital technologies and techniques improve, slides may become less important, but currently they cannot be replaced (NRAF 2003).

Mapping. All panel locations and associated archaeological features should be plotted using a hand-held GPS device capable of sub-meter accuracy. (Graffiti and defacement should also be plotted to allow the identification of any new graffiti or vandalism). This will provide both UTM coordinates and allow internal site mapping (i.e., showing the relationships of panel locations to each other) (NRAF 2003). This is another valuable tool facilitating re-identification of panels in the field, and provides information necessary to prosecute theft.

5. EVALUATION CRITERIA

After identification and documentation rock art sites must be evaluated for significance. Not all sites or rock art panels are significant and criteria of evaluation of the heritage value of rock art panels/sites will allow the identification of those panels of sufficient significance to receive more protective measures than those of lesser significance. This also provides a management tool for estimating the scale of damage caused by any future vandalism or natural erosion. Rock art is usually nominated as eligible for inclusion on the NRHP under criteria C and D (White 2002:29). Duke et al. (2004:140) note that rock art is commonly highly esteemed by Native American groups and could be additionally considered Traditional Cultural Properties in accordance with Bulletin 38 guidelines (White [2002] makes a similar point). White (2002:26-27) lists a number of the properties of rock art sites/panels that should be taken into consideration when assessing their eligibility for inclusion to the NRHP;

1) Aesthetic value—topographic setting and landscape setting may have played an important role in past selection of sites for making rock art (White 2002:26).

2) Historic value—rock art sites may record important events or the actions of important people. They may also contribute to a people's continuing sense of place and history (Stoffle et al. 2000; White 2002:26).

3) Scientific value—rock art sites/panel may have scientific value because of their potential to address research themes regarding chronology (because of the potential for direct dating or relative dating studies), past social practices, past ethnic and cultural identities, and past population movements (White 2002:26-27).

4) Sociocultural value—rock art sites/panels potentially have social and cultural value to Native Americans because they are perceived as inherently sacred or have a continuing religious use for traditional ceremonial practices. This sacred quality should be recognized and respected by all users of rock art sites. Also, rock art sites/panels may be of importance because of their role in manifesting indigenous cultural history in the landscape and their educational role in teaching Native Americans about their cultural heritage (White 2002:27-28). In these cases rock art could be treated as traditional cultural properties (Duke et al. 2004; White 2002:28).

In addition to these general principles of evaluation the following more specific criteria should be applied to rock art sites and individual panels to assess their significance and the level of protective measures applied. Table 3 allows the varying significance of sites and individual panels to be assessed based on a quantitative and qualitative consideration of their content and current condition. Sites or panels that have already suffered degradation have reduced significance. A site or panel's evaluation is not permanent—

significance may be restored through conservation work and it may be lost or diminished by future degradation (natural or human-caused). It is suggested that management of Sloan Canyon NCA's rock art sites should attempt to protect a representative sample of its character and features, and protect sites and/or panels that express motif types or styles that are regionally rare and/or not well-represented in the NCA, and/or are unique to the NCA. The development of a motif typology (suggested above) would facilitate the evaluation process.

A consideration of site visibility may assist in prioritizing the intensity of monitoring and/or the nature of protective measures to be applied to sites evaluated as significant. A site or panel's proximity to well-used trails, or a prominent position in the local topography, makes it highly visible to visitors. The nature of certain sites makes them highly visible even if they do not occupy striking landscape positions, in particular sites with large numbers of motifs present. A site's landscape visibility can be heightened by the actions of the general public, in particular the posting to the internet of maps of sensitive archaeological areas.

Table 3. Typology of the Significance of Rock Art Sites and Panels.

Class	Size[a] Motif#	Panel#	Condition[b]	Characteristics	Significance[c]
Ia	1	1	Very Poor to Good	Single prehistoric panel or motif in a well-defined and/or well-known regional or local style. The style and motif type is well represented at other sites in Sloan Canyon NCA	1
Ib	1	1	Normal to Good	A complex single prehistoric panel or motif that covers at least 5 m sq in area and/or comprises over 20 elements;‡ its scale and complexity make it potentially significant even if it is in a well-defined and/or well-known regional or local style. Not well represented at other sites in Sloan Canyon NCA.	3
Ic	1	1	Very Poor to Subnormal		2
Id	1	1	Very Poor to Good	A complex single prehistoric panel or motif that covers at least 5 m sq in area and/or comprises over 20 elements;‡ its scale and complexity make it potentially significant even if it is in a well-defined and/or well-known regional or local style—well represented at other sites in Sloan Canyon NCA	2
IIa	2-10	2-6	Very Poor to Good	Prehistoric panels or motifs in well-defined and well-understood regional and/or local styles which are well represented at other sites in Sloan Canyon NCA	2
IIb	2-10	2-6	Very Poor to Subnormal	Includes some prehistoric motifs that are of a distinctive and/or unusual localized style and/or are not well represented at other sites in Sloan Canyon NCA	2
IIc	2-10	2-6	Normal to Good		3
IIIa	11-50	≥7	Normal to Good	Prehistoric motifs that are representative are of well-defined and well-understood regional and/or local styles that are well represented in the Sloan Canyon NCA. The larger size of the assemblage makes it unusual for the local region	3
IIIb	11-50	≥7	Very Poor to Subnormal		2
IIIc	11-50	≥7	Subnormal to Good	Includes some prehistoric motifs that are either of a distinctive and unusual localized style, or are not well represented at other sites in Sloan Canyon NCA. The larger size of the assemblage makes it unusual for the local region	5
IIId	11-50	≥7	Very Poor and Poor		2
IVa	≥51	≥7	Subnormal to Good	Prehistoric motifs that are representative of well-defined and/or well-understood regional and/or local styles; are well represented in Sloan Canyon NCA. The larger size of the assemblage makes it unusual for the local region. May include some prehistoric motifs that are either of a distinctive and/or unusual style localized to Sloan Canyon NCA, or are not well represented at other sites in the NCA	4
IVb	≥51	≥7	Very Poor to Poor		2

Class	Size[a] Motif#	Panel#	Condition[b]	Characteristics	Significance[c]
Va	≥2	≥2	Subnormal to Good	Site is dominated by prehistoric motifs that are in a restricted regional and/or localized style—may be unique to, or poorly represented, in Sloan Canyon NCA.	5
Vb	≥2	≥2	Very Poor to Poor		2
VIa	≥1	≥1	Subnormal to Good	Motifs/panels that portray historic themes or subjects and can be identified accordingly. Historic subjects are a rare motif in Nevada's rock art	4
VIb	≥1	≥1	Very Poor and Poor		2

‡Elements are defined as the constituent parts of a motif/design—it does not refer to the number of motifs

[a]Site size is determined by whichever is greater: the number of motifs present or the number of panels. Duke et al (2004: Table 41) report that the average number of motifs per site surveyed is 41.3 and the average number of panels per site is 7.3.

[b]Condition—**Very Poor**—Motifs or panels are superimposed by very prominent graffiti/defacement and/or more than 40% of the surface of the motif/panel has eroded away; **Poor**—Some graffiti/defacement superimposes motifs/panels and/or some erosion affecting 20-40% of the motif or panel; **Sub-Normal**—Graffiti/defacement is present but not superimposing motifs/panels—it is intrusive and pollutes the visual appearance of the site; **Normal**—no graffiti or defacement present—some signs of natural erosion (exfoliation or other) on motifs/panels but not posing an immediate threat to site integrity; **Fine**—No graffiti/defacement present—few signs of natural erosion; **Good**—No graffiti/defacement and no signs of natural erosion.

[c]Significance is an assessment of site condition and site characteristics—sites rated 1-2 are of no or low significance; 3 = normal significance; and 4-5 = sites of particular significance. Significance does not reflect a site or panel's NRHP status.

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APPENDIX E

Visual Resource Management

VISUAL RESOURCE MANAGEMENT

The visual resource management (VRM) process is divided into two stages: inventory and analysis. Inventory is associated with resource management planning, and analysis is used primarily to determine whether proposed actions are appropriate to a VRM class assigned through the Resource Management Plan (RMP).

VISUAL RESOURCE INVENTORY

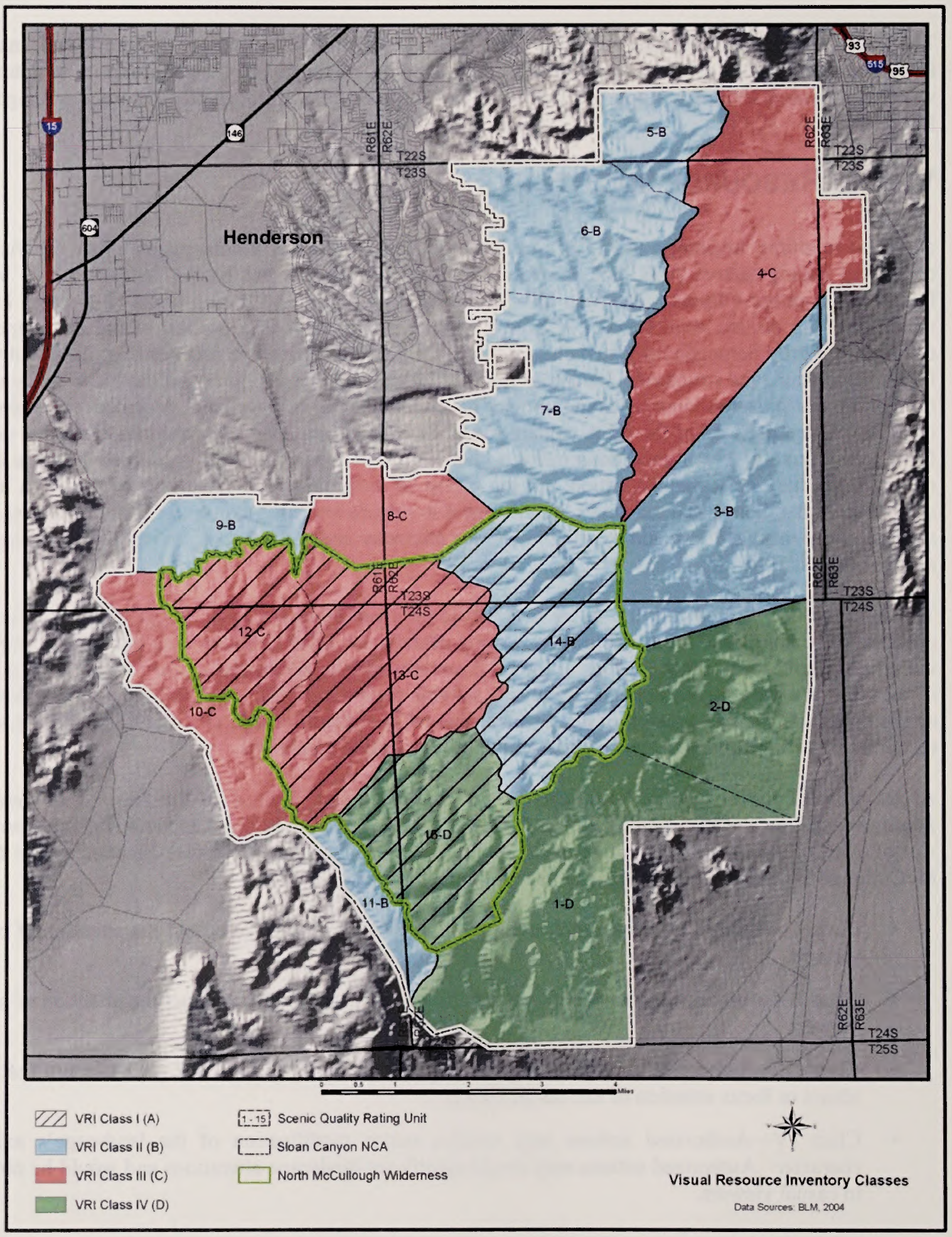
A visual resource inventory (VRI) of the Sloan Canyon National Conservation Area (NCA) was conducted during winter 2003, and the resulting inventory classes are shown in Figure E.1, Visual Resource Inventory Classes. The map also shows the Scenic Quality Rating Units (1 through 15) on which the VRI classes were based. A Scenic Quality Rating Unit is a portion of the landscape that displays primarily homogenous visual characteristics of the basic landscape features (e.g., land and water forms, vegetation, and structures). Inventory findings indicate that large portions of the NCA contain little change to the existing landscape and would be conducive to management designed to retain that character. Some portions of the NCA contain moderate or extensive landscape modifications that detract from scenic quality. Such conditions make it challenging to conserve scenic resources. In these areas, opportunities may exist for restoration and mitigation of disturbances. Other areas of the NCA are so seldom seen that their visual resources do not appear to require intensive management. Nevertheless, they may be easily managed to retain existing landscape character and conserve scenic resources despite VRI ratings of Class III or IV.

The inventory confirmed that the NCA contains large areas of undisturbed desert landscape that can continue to be conserved for scenic quality. Many of the areas inventoried provide scenic backdrops for the urban interface, and other portions of the NCA contain remote wilderness landscapes. A small portion of the NCA has lower visual appeal but remains suitable for a wider variety of multiple uses and provides ample opportunity for restoration of disturbance. The NCA contains a wide variety of high-quality visual resources that can be managed to maintain and improve existing conditions.

At the time of the inventory, VRM classes for the NCA were defined in the *Las Vegas Resource Management Plan* and modified by the Clark County Conservation of Public Land and Natural Resources Act of 2002, Title VI (Sloan Canyon NCA Act), which changed the VRM classification of the North McCullough Wilderness. Definitions of the VRM classes are as follows:

- Class I—Authorized actions may not modify existing landscape or attract the attention of casual viewers.
- Class II—Authorized actions may not modify existing landscape or attract the attention of casual viewers.
- Class III—Authorized actions may alter the existing landscape but not to the extent that they attract or focus attention of the casual viewer.
- Class IV—Authorized actions may involve major modification of the landscape's existing character. Authorized actions may create significant landscape alterations and would be obvious to casual viewers.

Figure E.1. Visual Resource Inventory Classes



Methods

BLM directives identify a standard set of procedures for VRI (*BLM Manual Handbook 8410-1*). This Handbook describes procedures for a typical BLM field office, but does not contain specific guidance for smaller areas such as the NCA, which is only 48,438 acres in size. Methods for the VRI of the NCA were developed based on standard inventory procedures, and modified to adapt to the smaller size of the area. The process involved several steps, including the selection of observation points, delineation of Scenic Quality Rating Units, delineation of Sensitivity Level Rating Units, and determination of distance zones. The NCA was evaluated for scenic quality, sensitivity, and distance zones during fieldwork conducted in January 2004.

The purpose of conducting the VRI was to place all portions of the NCA into one of the four inventory classes described above. These inventory classes represent the relative values of the visual resources and provide the basis for considering visual values in the resource management planning process. Results of the VRI describe actual conditions of the resource during the time of inventory and are presented as "inventoried" rather than as "recommended" VRM classes.

Inventory Preparation

The first step in conducting the VRI was the selection of observation points. Two site visits were conducted to determine points to be used in conducting the inventory. 1:24,000 scale U.S. Geological Survey topographic maps were also used to determine desirable points for the VRI. Factors considered in the selection of points included topographic features, visibility of the NCA, amount of use, proximity to travel corridors, proximity to the urban interface, known points of interest, and relative sensitivity.

Observation points selected through field visits and map work were compiled into a digital shapefile for use in a geographic information system (GIS). This shapefile was used in conjunction with a digital elevation model of the area to conduct multiple viewshed analyses. The viewshed analyses showed what portions of the NCA were visible from each observation point, as well as the total area visible from all points. These viewshed analyses facilitated the elimination of points with poor visibility of the NCA and the addition of observation points where needed.

The viewshed analyses also assisted in the creation of Scenic Quality Rating Units and Sensitivity Level Rating Units. Combinations of viewsheds were analyzed to determine which areas of the NCA shared common visibility characteristics and could be combined into units. Based on this analysis, Scenic Quality Rating Units were delineated and digitized. This analysis also determined that Sensitivity Level Rating Units would be the same shape and size as the Scenic Quality Rating Units.

Following this preliminary analysis, a work plan for conducting the VRI fieldwork was prepared using the observation points, Scenic Quality Rating Units, and knowledge of the area. Groups of observation points were associated with each Scenic Quality Rating Unit, and a travel plan was arranged to visit each point. The work plan identified steps for collecting observations, taking digital and 35mm photographs, and evaluating the visual resource characteristics. Throughout the preparation process, the BLM Visual Resource Specialist was consulted to solicit preferences in methodology and present plans and interim products. The work plan, including the observation points, Scenic Quality Rating Units, and viewshed analyses were presented to the BLM Visual Resource Specialist prior to the fieldwork. All products and plans received approval on January 8, 2004.

Field Inventory

Fieldwork for the VRI was completed January 13–16, 2004. The inventory was conducted using the established observation points, rating units, and work plan. Observation points were visited through a combination of vehicle and foot travel. At each observation point, a standard set of observations was taken, including—

- One global positioning point.
- Observations of each Scenic Quality Rating Unit noted on the BLM Scenic Quality form.
- Observations of each Scenic Quality Rating Unit noted on the BLM Sensitivity form.
- Determination of distance zones noted on a Distance Zone form.
- 35 mm photographs of visible areas of the NCA.
- Digital photographs of the same visible areas of the NCA.

In instances where a Scenic Quality Rating Unit/Sensitivity Level Rating Unit was visible from more than one observation point, observations were recorded at the initial point and expanded at subsequent observation points. Similarly, observations of distance zones were recorded for each rating unit at the initial point then expanded as necessary at subsequent points. Digital and 35 mm photographs were taken at each observation point to capture representative scenery visible from each point. In several instances a series of photographs was taken to capture a panoramic view of the NCA.

Post-Inventory

Following the field inventory of visual resources in the NCA, results of the evaluation were organized and compiled to combine the scenic quality, sensitivity, and distance zone ratings into VRI classifications. The following tasks were conducted:

- Forms used in evaluation of the three visual resource components were completed, and final classifications for each were tabulated.
- Global positioning system points captured for each point were converted into shapefiles.
- Digital and 35 mm photographs were sorted and organized against the photo log.
- Ratings produced for scenic quality, sensitivity, and distance zone were combined and produced as digital GIS layers using the "scores" reported on the rating forms.

Results

Once the inventory ratings were completed, the three components were combined using methodology based on the approach described in *Visual Resource Management Manual Handbook 8410-1,* Illustration 11. This approach was modified using *BLM Technical Note 407—Integrating GIS Technologies with the Visual Resource Management Process (November 2001)*. The GIS methodology in *Technical Note 407* describes the procedure for combining rating components into inventory classes. The procedure of Method 2, described on pages 9 and 10 of *Technical Note 407*, was used to create VRI classes in a GIS. The Boolean Rules in Method 2 were applied to the three rating layers for Scenic Quality, Sensitivity, and Distance Zones to produce the VRI layer.

VISUAL RESOURCE ANALYSIS

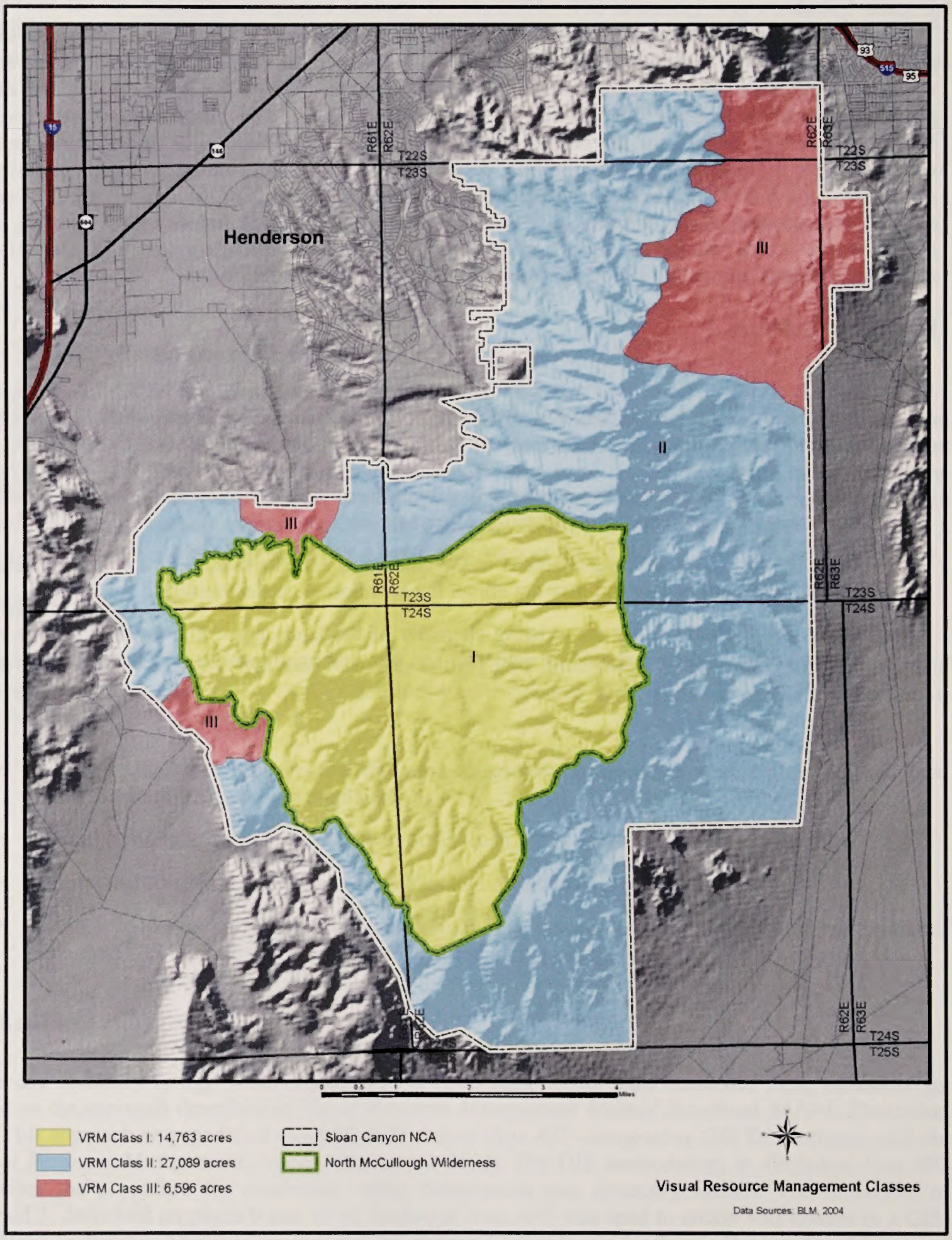
The analysis stage involves determining whether the potential visual impacts from proposed surface disturbing activities or developments would meet the management objectives established for the area or whether design adjustments would be required. Visual Contrast Ratings are determined at the start of planning, prior to the beginning of construction or disturbance. During the visual contrast rating process, BLM compares the features of the proposed project with the major features in the existing landscape using the basic design elements of form, line, color, and texture. The complete process is described in *BLM Handbook H-8431-1, Visual Resource Contrast Rating*. The results of the analysis are then used as a guide for reducing visual impacts. Once every attempt is made to reduce visual impacts, BLM managers can decide whether to accept or deny project proposals. Managers also have the option of attaching additional mitigation stipulations to bring the proposal into compliance.

Proposed Plan

As discussed in section 2.3.6 of the Proposed Plan and shown in Figure E.2, the NCA's visual resources are assigned to the following management classes, as defined in *BLM Handbook H-8410-1, Visual Resource Inventory*:

- Class I—Preserve the existing character of the landscape. Authorized actions may not modify the existing landscape or attract the attention of casual viewers.
- Class II—Retain the existing character of the landscape. The level of change to the characteristic landscape should be low and may not attract the attention of casual viewers.
- Class III—Partially retain the existing character of the landscape. The level of change to the characteristic landscape should be moderate and may minimally attract the attention of the casual viewer.

Figure E.2. Visual Resource Management Classes—Proposed Plan



APPENDIX F

Interpretive Strategy and Environmental Education Strategy

SLOAN CANYON NCA INTERPRETIVE STRATEGY AND ENVIRONMENTAL EDUCATION STRATEGY

The cities of Las Vegas and Henderson, Nevada, form one of the fastest growing metropolitan areas in the United States. A rapidly expanding, urban and suburban metropolitan area of homes, businesses, and infrastructure now surrounds the well-known lights of The Strip. Yet immediately on the edges of this expansion, much of the land is open and undeveloped. This constantly changing interface of urban and natural settings provides unique challenges and opportunities for the Bureau of Land Management (BLM), Las Vegas Field Office, which manages public lands comprising much of this open space. In November 2002, Congress designated the Sloan Canyon National Conservation Area (NCA), located adjacent to the City of Henderson, to preserve and protect a portion of southern Nevada's Mojave Desert as a permanent asset for future generations.

Residential housing, schools, parks, and businesses will eventually border much of the northern and western edges of the NCA; however, at present, the NCA is undeveloped, and most recreation use occurs near the Sloan Canyon Petroglyph Site. There is no visitor facility, there are multiple entrances with few roads, and most visitors do not come into contact with BLM staff. However, the future urban and diverse audience will need to understand the NCA's valuable natural and cultural resources to appreciate and protect them. Finding ways to achieve this understanding will be the challenge of the NCA Interpretive and Environmental Education Program.

This strategy clarifies and sets direction for the Interpretive and Educational Program at the Sloan Canyon NCA. It provides a vision for future interpretation, education, and visitor experience opportunities. The strategy guides the development of an effective interpretive program that would serve visitors; promote the health of the land; and enhance the public's enjoyment, understanding, and appreciation of the NCA. This document presents a brief overview of the interpretive planning process, a discussion of the purpose and significance of the NCA, existing visitor conditions in the NCA, and high-level actions related to the NCA's interpretive and educational goal and objectives. Whenever possible, the Interpretive and Environmental Education Programs should be in the same organizational group.

1.0 THE INTERPRETIVE PLANNING PROCESS

The ultimate goal of the interpretive planning process is to establish a cost-effective, focused, high-quality program that effectively addresses all audiences and that identifies a variety of visitor experience opportunities. Building on the high-level management actions prescribed in the Sloan Canyon NCA Resource Management Plan (RMP), this strategy provides a framework within which a more detailed comprehensive interpretive plan would be prepared. It provides tactical guidance for subsequent planning and leads to implementing actions directed toward interpretation and visitor experience opportunities.

This strategy would help focus collaborative planning discussions with internal interpretive team members (e.g., subject matter experts) and external cooperators. External cooperators could include surrounding communities, interested tribes, and other federal agencies. Subsequent planning could include the development of appropriate interpretive services, facilities, programs, and media that protect and preserve resources while communicating the NCA's purpose, significance, compelling stories, themes, and values.

In addition to a tiered planning approach, the Interpretive and Environmental Education Program would integrate and support the ongoing planning efforts of other resource teams. For instance, there is a common interest in managing the North McCullough Wilderness for key visitor experiences; therefore,

wilderness and recreation planning should strongly tie with the Interpretive and Environmental Education Program.

2.0 PURPOSE OF THE SLOAN CANYON NCA

The Clark County Conservation of Public Land and Natural Resources Act of 2002 (the Clark County Act) established the Sloan Canyon NCA and the North McCullough Wilderness, which is entirely contained within the NCA. The approximately 48,438-acre NCA forms the natural, mountainous southern skyline of the cities of Henderson and Las Vegas and contains unique scenic and geologic features and important archaeological sites (see Figure F.1). The centerpiece of the NCA is the Sloan Canyon Petroglyph Site, one of the most significant cultural resources in southern Nevada. More than 300 rock art panels with nearly 1,700 designs represent native cultures dating from the Archaic to historic era.

> The purpose of the Sloan Canyon NCA, per the Clark County Act of 2002, is—
>
> "…to conserve, protect, and enhance for the benefit and enjoyment of present and future generations the cultural, archaeological, natural, wilderness, scientific, geological, historical, biological, wildlife, educational, and scenic resources of the Conservations Area."

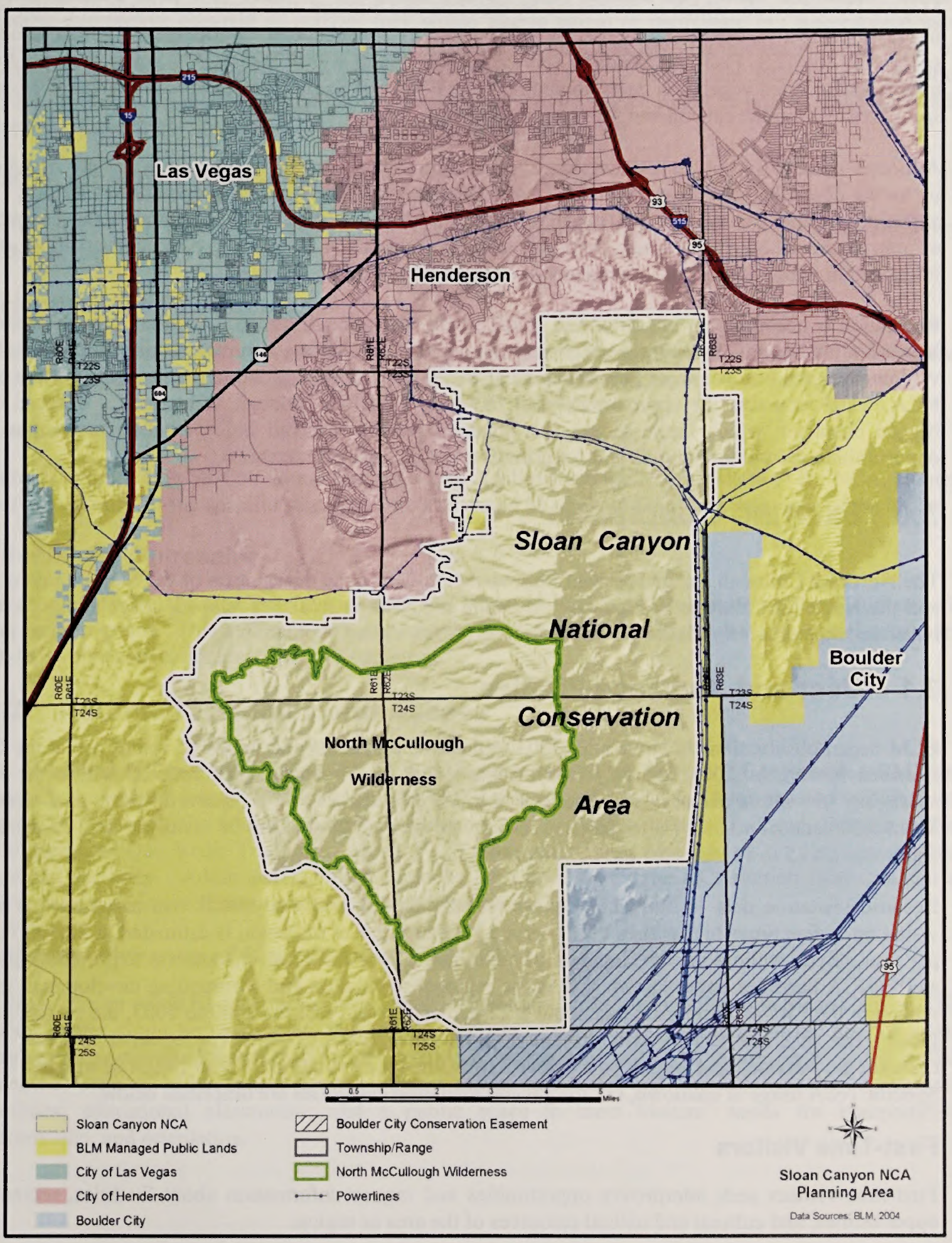
The Clark County Act directs the Secretary of the Interior, through the BLM, to manage the Sloan Canyon NCA in a manner that conserves, protects, and enhances the Conservation Area's resources for the benefit and enjoyment of present and future generations. The Clark County Act identifies cultural, archaeological, natural, wilderness, scientific, geological, historical, biological, wildlife, educational, and scenic resources as important reasons for establishing the NCA. The designation of the North McCullough Wilderness, administered under the Wilderness Act of 1964 and Titles II and VI of the Clark County Act, requires that approximately 14,763 acres within the NCA be preserved and protected in their natural, primitive condition.

2.1 Significant Features of the Sloan Canyon NCA

The Sloan Canyon NCA encompasses the northern portion of the McCullough Range, lies southeast of the City of Las Vegas, and borders the City of Henderson. Volcanoes formed the McCullough Range, and a long basalt spine dominates the topography within the NCA. The eastern slopes of the range are much steeper than the western slopes, and the ridgeline offers excellent views of the Las Vegas Valley, numerous mountains, and the Eldorado and Jean dry lakes. Elevations within the NCA range from about 1,800 feet on the southeastern border to 5,000 feet at Black Mountain.

Archaeological evidence suggests that humans have used the NCA resources for nearly 7,000 years. Sloan Canyon Petroglyph Site, located within the southwestern portion of the NCA, contains more than 1,700 rock art elements within a 0.5-mile stretch of canyon. Although cultural affiliation has not been determined for each panel, archaeologists studying Sloan Canyon believe it has been used by many previous cultures, including Archaic. An ethnographic study completed for the Sloan Canyon NCA RMP and ongoing consultation with tribes have confirmed the cultural significance of the Sloan Canyon Petroglyph Site to today's Native Americans. In addition to the Sloan Canyon Petroglyph Site, cultural resources inventories identified 19 other rock art sites in and around the NCA, but never in the quantities or as elaborate as in the canyon. The Sloan Canyon Petroglyph Site has been listed on the National Register of Historic Places since 1978.

Figure F.1. Sloan Canyon National Conservation Area Planning Area



The McCullough Range is located in the Mojave Desert near the confluence of two other unique geographic zones: Colorado Plateau and Great Basin. This setting plays a major role in the natural characteristics of the NCA. The primary ecosystem in northern portion of the McCullough Range is Mojave Desert Scrub, which is dominated by creosote and bursage with scattered stands of cholla cactus in varying densities, depending on elevation. The Blue Diamond cholla, considered a potential candidate species by the U.S. Fish and Wildlife Service, is also found within the NCA. Small communities of unique and isolated vegetation types, including several Special Status Species of beardtongue (*Penstemon spp.)*, exist within the canyon and wash microclimates.

Although essentially only one ecosystem type is represented, the NCA supports a variety of wildlife, including desert bighorn sheep, mountain lions, Gila monsters, and the threatened desert tortoise. Two artificial wildlife water locations (guzzlers) were developed within the NCA through the cooperative efforts of the BLM, the Nevada Department of Wildlife (NDOW), and private conservation groups interested in improving habitat for bighorn sheep and other wildlife species.

Recreation is becoming an important use of the North McCullough Range. As urban growth in the Las Vegas Valley has enveloped the northern portion of the NCA, hiking, mountain biking, and off-highway vehicle use have become more prevalent. This situation can be contrasted to the southern portion of the NCA, which contains the approximately 14,763-acre North McCullough Wilderness. Because of its rugged character, which limits access, this southern portion received little visitation in the past, and opportunities abound for solitude and for primitive and unconfined recreation.

3.0 EXISTING CONDITIONS

The North McCullough Range received little visitation before the designation of the Sloan Canyon NCA and the North McCullough Wilderness. Although the NCA is still undeveloped, usage along the urban interface has increased with the growth of the Las Vegas Valley population.

3.1 User and Audience Profiles

BLM began observations in November 2003 to determine patterns and trends of visitor use at the NCA. Between November 2003 and July 2004, about 4,000 total visitors were counted within the NCA, averaging 15 visitors per day. Extrapolated to a full calendar year, the observed visitor total would be about 5,500 annual visits. Visitor patterns indicated peak visitation (15 to 35 visits per day) on weekends and lower use (5 to 15 visits per day) on weekends.

Because visitation data is limited, for purposes of planning and analysis, it was assumed that actual visitation is five times higher than the observed. Hence, current visitation is estimated at 28,500 visitors per year. Even without the development of additional visitor facilities, visitation is expected to increase as the NCA becomes better known and as the regional population and surrounding development grows. Although the City of Henderson had about a 22-percent growth rate for 2000 to 2003, the current annual growth rate in Clark County is 4 percent (Clark County 2003a). As a conservative estimate, if this constant growth rate were applied to NCA visitation, the total visitation in 2030 would be roughly 75,000. Specific NCA usage is unknown, but the general visitation categories are described below.

First-Time Visitors

First-time visitors seek interpretive opportunities and request information about facilities, recreational opportunities, and cultural and natural resources of the area or region.

Repeating and Recreational Users

Some repeated users may return to the Sloan Canyon NCA because they found information about a specific interpretive program or activity they would like to attend or participate in. Recreational users often travel with people who are already familiar with the area and have no interest in taking time out from their activity to attend "educational/interpretive programs." Their main interest is information regarding conditions related to their chosen recreational activity, which might be posted at the trailheads; therefore, there might not be a need for them to visit the visitor center.

Native American Traditional Users

Native Americans from surrounding tribes that have historically used the area for traditional cultural activities may visit the NCA for cultural purposes.

Scientists and Researchers

Scientists and researchers from universities and government agencies may come to the NCA to conduct scientific research to further support the vision of the BLM and Sloan Canyon NCA management.

Hunters

Hunters permitted by NDOW would be only a very small percentage of the visitors to the NCA. Hunters would visit only during specific seasons of use and would be likely to focus on some areas of the NCA.

Community Outreach

Because of the NCA's proximity to the urban Las Vegas Valley, there is a potentially large audience for outreach programs. This audience includes schools, service clubs, sporting clubs, and special events and could involve concessionaires and tour operators.

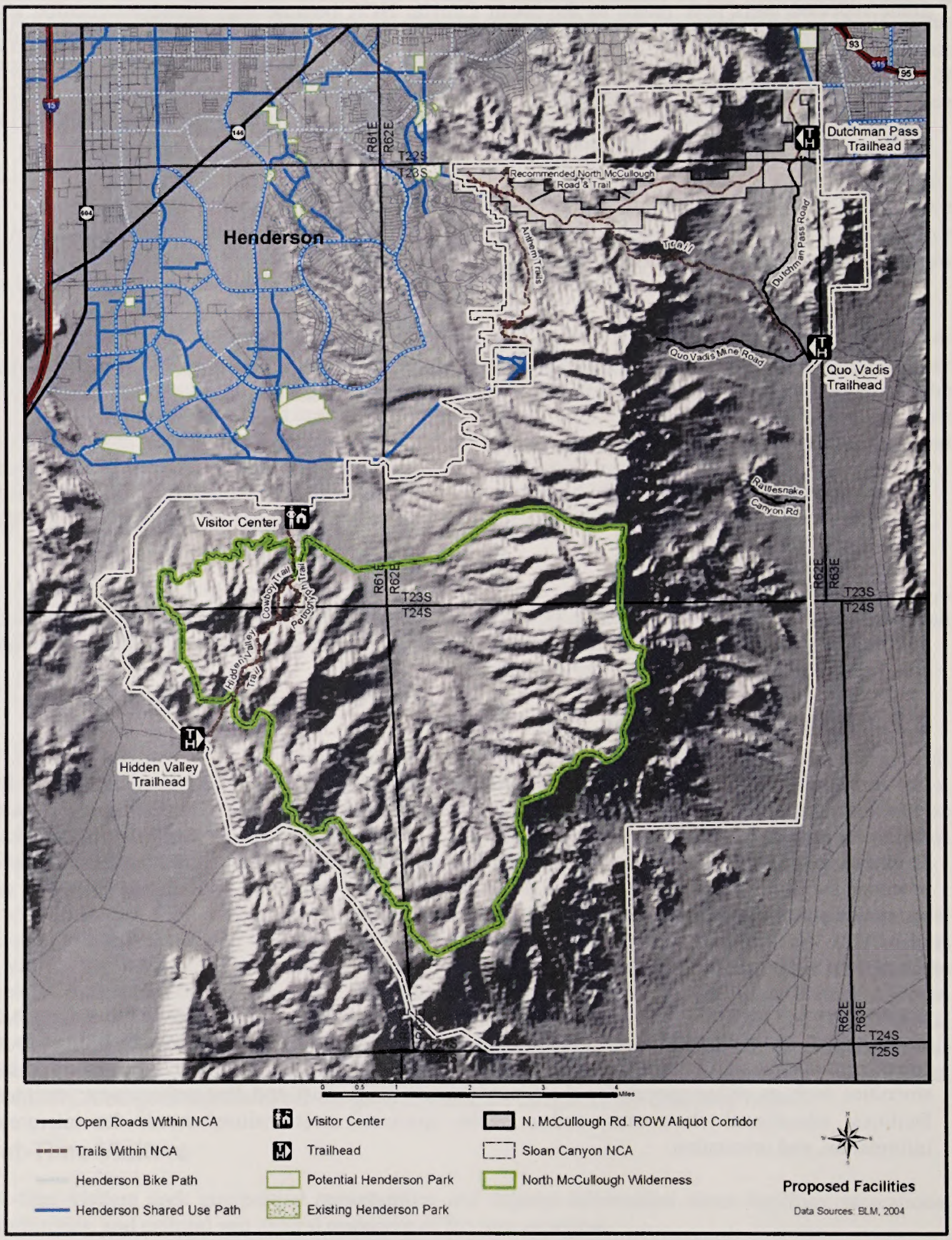
3.2 Potential Facilities and Access

No developed facilities exist within the NCA. However, the Sloan Canyon NCA Proposed RMP and Final Environmental Impact Statement (PRMP/FEIS) discusses potential facilities and access points into the NCA, including the northern entrance of Sloan Canyon, Hidden Valley Trailhead, Dutchman Pass Trailhead, and Quo Vadis Trailhead. Figure F.2, Proposed Facilities Map, shows the locations of these potential facilities. Additional facilities could be developed over time as visitation increases and as resource monitoring indicates the need for additional protection.

Northern Entrance of Sloan Canyon

A visitor center could be constructed near the NCA boundary at the north entrance to Sloan Canyon. The visitor center could be used as an access point for the Sloan Canyon Petroglyph Site, provide onsite resource protection and interpretation, and provide NCA management. The visitor center could include amenities such as office spaces for the Sloan Canyon NCA staff and law enforcement; maintenance facilities; educational classrooms; and a public space to meet visitors' needs for interpretation, information, and orientation.

Figure F.2. Proposed Facilities



Hidden Valley Trailhead

A multi-panel kiosk placed inside the NCA boundary would provide safety, orientation, and resource protection information as well as limited highlights of local recreational opportunities and interpretive stories.

Dutchman Pass Trailhead

A freestanding, multi-panel sign would be placed near the proposed North McCullough Road. Messages could include safety, orientation, resource protection information, interpretive stories, and recreational use by equestrians.

Quo Vadis Trailhead

A freestanding, two-panel sign would be located at the trailhead displaying informative messages, orientation, safety, and interpretive stories.

Minor Trailheads

Freestanding, single-panel sign or bulletin board would be placed at minor trailheads to display brief safety information on trail, orientation, and brief interpretive stories.

3.3 Issues and Influences

The following resources and management issues could be addressed through the interpretive media (e.g. brochures, websites).

Safety Issues

- Summer temperatures in southern Nevada regularly exceed 100°F, and many visitors may be unprepared for the severity of such exposure.
- There is little road access into the entire NCA, and most portions require self-sufficiency. Some visitors may be unprepared, ill equipped, or inexperienced in handling wilderness, wildlife, and weather dangers.
- Monsoon-driven heavy thunderstorms, accompanied by lighting and flash flooding, often occur during summer, and some of the most frequently visited areas are wash bottoms. Visitors may be unaware that these floods are extremely dangerous.
- Potable water is not available in the NCA.

Visitor-Related Resource Issues

- "Leave No Trace," "Tread Lightly," and/or other minimum impact resource use might not be practiced by some visitors.
- Some visitors may not know they are in an NCA and/or do not know understand the rules and regulations leading to unintentional infractions or resource violations.
- Cultural resource site protection in backcountry is an issue.

- The limited number of access points might concentrate visitor use, impacting the resource and visitor experience.

Other Management Issues

- A perceived and sometimes real conflict might exist between recreational users.
- Public and visitors do not recognize the significance of Sloan Canyon NCA.

4.0 Interpretive Goal and Associated Objectives and Actions

The Sloan Canyon NCA PRMP/FEIS identifies the following goals, objectives, and actions that provide a framework for more detailed interpretive planning:

Provide opportunities for on- and offsite visitors to develop an appreciation and understanding of the NCA's resources through educational, informational, and inspiring interpretive experiences.

Objective 1

Provide orientations, education, accurate information, regulations, and interpretation that helps meet the user's needs (e.g., tours, kiosks, brochures, virtual tours, website, libraries, community outreach).

Actions

- Provide thematic interpretive presentations to enhance the appreciation, understanding, and protection of the NCA's natural, cultural, and recreation resource values.
- Identify ways of increasing the NCA's interpretive services through cooperative efforts with other government and nongovernment agencies, Native American tribes, cooperating associations, permitted outfitters and guides, concessionaires, and nonprofit organizations.
- Develop criteria and procedures for identifying interpretive needs and evaluating programs and media.
- Identify and maintain accurate databases on interpretive projects and facilities associated with the NCA.
- Prepare an annual implementation plan that would identify the NCA's priorities to be accomplished for the year.
- Identify and compile basic information (safety, orientation, and recreational information) that could be provided to customers through appropriate media (online, visitor access areas, cooperative sites, and programs).

Objective 2

Identify opportunities for Native American tribes to provide programs and products.

Actions

- Partner with interested Native American tribes in developing interpretive programs, educational material, and media on NCA resources that are consistent with the NCA mission, including integrating regional historic and contemporary tribal relationships with the NCA and the expanded story of traditional cultures.

- Develop a repository for storing Native American archival literature, including space where visiting Native Americans can conduct cultural research.

Objective 3

Provide interpretation that fosters stewardship behavior in visitors so their actions would have a minimum impact on the NCA's resources.

Actions

- Use interdisciplinary teams to identify local resource management issues to be addressed by interpretive efforts.

- Select interpretive media and techniques that minimize impact to and enhance the protection of the resources.

Objective 4

Increase public awareness of NCA management goals.

Actions

- Broaden public support for the NCA by providing outreach programs to a diverse audience. Inform the public about the sensitive nature of the NCA resources, purpose of the NCA designation, and need for NCA regulations.

- Consider developing a diverse range of high-quality experiences that is consistent with NCA purposes and is based on NCA's resources and values, with consideration for sustainable practices and traditional uses.

Objective 5

Provide opportunities for research specialist, researchers, and managers to participate in the development of outreach presentations and media.

Actions

- Promote, coordinate, and disseminate research to enhance scientific understanding of the NCA environment and incorporate this research into the Interpretive and Education Program for the public's benefit.

APPENDIX G

Litter Cleanup Plan and Public Lands Awareness Campaign

SLOAN CANYON NCA LITTER CLEANUP PLAN AND PUBLIC LANDS AWARENESS CAMPAIGN

The congressionally designated Sloan Canyon National Conservation Area (NCA) consists of nearly 48,438 acres that encompass a diverse landscape, ranging from the North McCullough Wilderness (Wilderness) to borders with densely populated urban areas. The Sloan Canyon NCA Act (Title VI of the Clark County Conservation of Public Land and Natural Resources Act of 2002), which established the NCA, requires the Bureau of Land Management (BLM) to develop a management plan for the NCA, including a plan for litter cleanup and a public lands awareness campaign in and around the Conservation Area. Incorporating this Litter Cleanup Plan and Public Lands Awareness Campaign into the Proposed Resource Management Plan and Final Environmental Impact Statement (PRMP/FEIS) provides adaptability and efficiency in implementing cleanup actions by identifying management priorities and related potential decisions and helps ensure that an effective anti-litter message is delivered.

Northeast portion of the NCA depicting illegal disposal of automobile

Illegal paintball course (Northeast portion of the NCA)

Litter and trash are fundamental problems affecting the NCA, and related concerns were brought forward during the public scoping process. Materials currently found within the NCA range from litter associated with the NCA's proximity to the urban area, to trash including abandoned automobiles, appliances, furniture, and shell casings. In addition, the illegal dumping of construction and landscaping debris is common near the NCA boundary.

Other contributing factors to the litter problem include prior recreational use and the lack of public education and awareness. Furthermore, before the establishment of the NCA, this area was part of the 3 million acres of land under the responsibility of the BLM Las Vegas Field Office, and the enforcement of illegal dumping was difficult. The litter and trash problem is compounded by the area's increased use as a result of the changing population of Clark County, Nevada, which is one of the fastest-growing counties in the nation and includes the areas immediately surrounding the NCA. In addition, awareness of the NCA since its designation is expected to increase visitation to the area and consequently the potential for additional litter. Nonetheless, the increased BLM management presence should help reduce litter and trash dumping.

1.0 LITTER CLEANUP PLAN

To proactively address the litter problem, the BLM Las Vegas Field Office has implemented an interim management plan, which was implemented during the Sloan Canyon RMP planning process. The purpose of this interim management, which is based on existing laws, regulations, and guidance, including the *Las Vegas RMP* (BLM 1998a), is to maintain the resources and values that were the basis for creating the NCA while more detailed planning is in progress. Numerous elements comprise the interim management plan for the NCA, but those pertaining to litter focus on cleaning up some of the most damaged areas, establishing the boundaries of the NCA through signing, educating the public on the NCA's existence and applicable regulations, and enforcing current rules. The two basic elements of current litter control, which will be further discussed in this plan, are litter cleanup and prevention via law enforcement and education.

Currently the Sloan Canyon NCA management is hosting volunteer desert cleanups on a nearly monthly basis, including a major National Public Lands Day event in October 2004. During that event, 250 volunteers picked up more than 35 tons of trash, and the City of Henderson Public Works Department and volunteer off-highway vehicle (OHV) user groups removed more than 20 automobile bodies. During the interim period, signs have been placed along the NCA boundary and at main access points leading to the Wilderness boundary. A program for visitor contact and education by NCA staff and BLM law enforcement was undertaken, with an introductory warning period for OHV use, recreational target shooting, and camping in portions of the NCA subject to BLM and Clark County use closures. This warning period was followed by enforcement actions by BLM and local law enforcement. This Litter Cleanup Plan is intended to build on the progress made during interim management and eventually result in an NCA that is litter-free as possible. Because of the magnitude of the existing litter deposits and the large area affected, a two-pronged approach of cleanup and prevention would be used to reach this goal.

1.1 Litter Zones

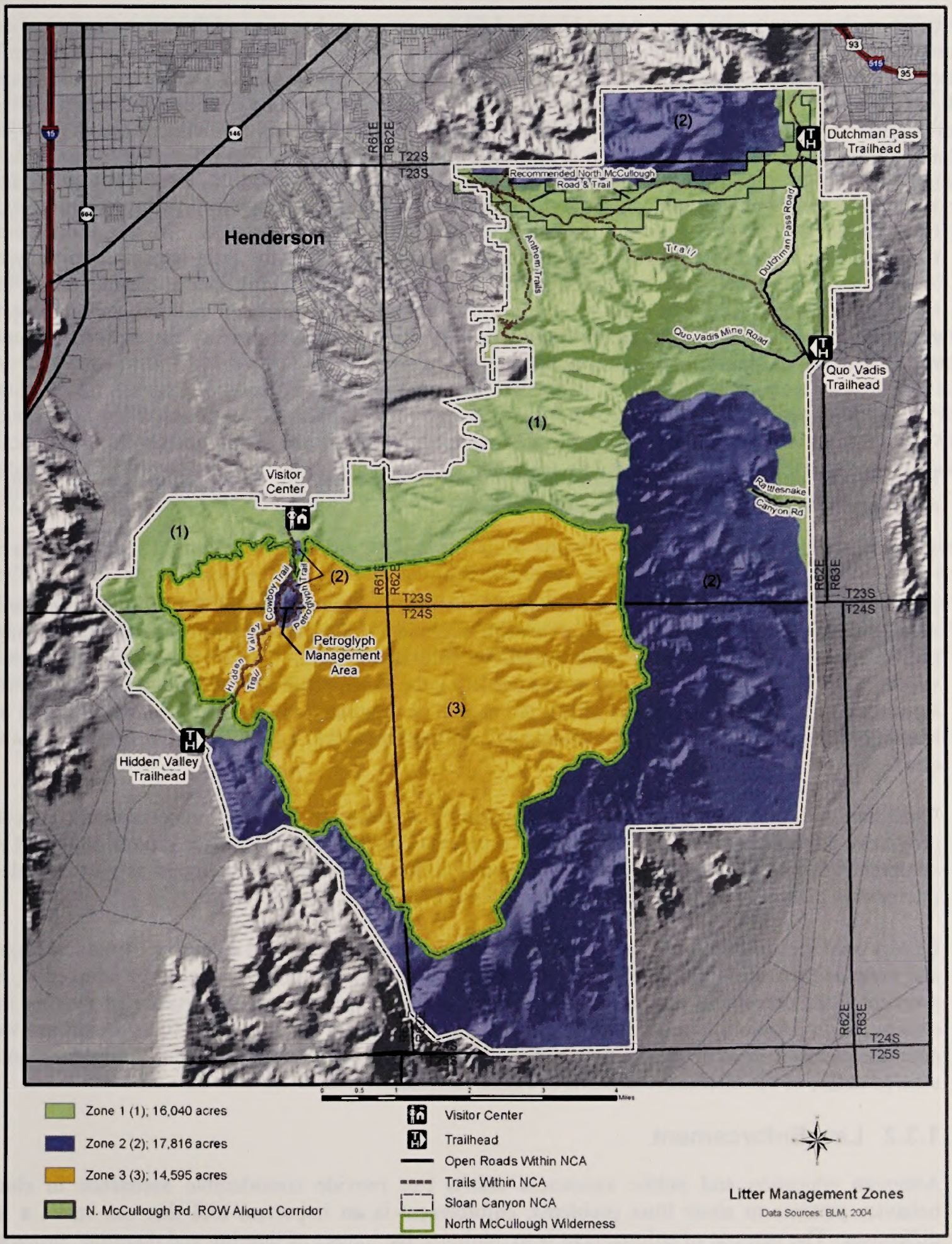
To facilitate implementing the Litter Cleanup Plan, the NCA was divided into three litter zones based on the Management Emphasis Area zones described in Chapter 2 of the PRMP/FEIS, current litter conditions, accessibility, and proximity to future developed areas (Figure G.1).

Zone 1, High Litter Management Area—Mainly is the northern portion of the NCA near the urban interface that historically contained large amounts of litter and dumping. Although at present some of the area has been cleaned up through volunteer efforts, this zone is easily accessed by illegal dumpers and continues to have a high priority for cleanup and enforcement. These heavily littered areas are considered to have high probability for future litter concerns.

Zone 2, Moderate Litter Management Area—Forms the southeastern and southwestern border of the NCA and the highly visited Sloan Canyon Petroglyph Site. Zone 2, which has medium to low concentrations of litter, would require moderate litter management and enforcement. Once existing litter is removed, it could be kept at a minimum through public awareness and education.

Zone 3, Low Litter Management Area—Consists of the Wilderness, where the amount of litter is very low. Because visitation is also low, this area is anticipated to need minimal litter management and enforcement. However, as this areas is managed to maintain natural and primitive characteristics, litter cleanup would be in important aspect.

Figure G.1. Litter Management Zones



Monitoring would be used to measure the effectiveness of the Litter Cleanup Plan and track changes in litter levels. BLM would conduct visual surveys of the NCA to determine the effectiveness of litter removal and identify areas within the NCA that require special or additional litter cleanup efforts.

1.2 Cleanup Phase

The first step in creating an NCA that is as litter-free as possible is to remove existing trash and litter. Volunteer programs historically have been the primary mechanism for cleaning up the NCA, and this tradition would continue, focusing on Litter Zone 1 first, until the current litter is removed. BLM would maintain partnerships with local communities such as the City of Henderson, businesses, and organized volunteer groups to help ensure a successful removal campaign. It is anticipated that much of the existing litter would be removed before completion of the RMP planning process. In the Wilderness, the techniques employed to remove the litter would be those that cause the least impacts. Portions of the NCA, such as areas that have been used for target shooting, would require special cleanup processes. In these areas, the surface might need to be scraped to remove all accumulated material, and the vegetation restored. Once an area is deemed "litter-free," the level of new litter within the NCA would be monitored, and cleanup events would be scheduled as needed.

1.3 Prevention Phase

BLM would develop anti-litter educational messages aimed at all NCA visitors. In addition, litter enforcement activities would be increased.

1.3.1 Education

During the cleanup phase and into the foreseeable future, BLM would encourage visitors to maintain and take pride in the condition of the NCA through education and by developing an awareness of the litter problem and its associated impacts on the NCA's natural resources. Those visitors who understand the values of the NCA, along with homeowners bordering the NCA, could become strong advocates and good stewards. Litter not only adversely affects the natural environment, visual amenities, wildlife, and human health, but controlling it also affects funding and staffing resources. Litter prevention costs less than litter cleanup.

Particular attention would be given to developing appropriate outreach materials and educational programs, particularly anti-litter educational programs directed to various user groups of the NCA. A comprehensive litter messaging strategy or outreach themes would be developed as part of a detailed interpretive planning and would likely include "Leave No Trace" outdoor ethics.

BLM would seek to exemplify and encourage good stewardship of natural resources by reducing, reusing, and renewing materials where possible. For example, a recycling program would be adopted to further promote litter prevention and to provide educational messages on the importance of reusing limited resources. In addition, to reduce the amount of paper that might become litter, BLM would use website communication instead of printed materials where possible. NCA maps and other information could be viewed online or via interactive exhibits at visitor facilities.

1.3.2 Law Enforcement

Although education and public awareness efforts can provide considerable assistance in changing behavior patterns to abate litter problems, enforcement is an important tool that can make a lasting difference. The purpose of enforcement is to minimize the impact of littering and dumping, promote and

achieve compliance with the law, and enable courts to uphold the law by punishing offenders and deterring others.

The term "enforcement" has a broad meaning, and BLM would take a range of actions, such as offering information, advice, and warnings; penalty notices that could require action within a specified time period; and prosecutions. BLM would work in cooperation with local agencies to promote a consistent approach, including policies and guidelines for the enforcement of dumping and littering regulations (43 Code of Federal Regulations 9640.1 [f] and [k]). Enforcement duties would include tagging and towing abandoned vehicles, issuing warnings, and investigating illegal dumping within the NCA. BLM would explore the possibility of developing a trash reporting hotline and consider the development of NCA-specific special regulations, such as banning spray paint cans from the NCA.

2.0 PUBLIC LANDS AWARENESS CAMPAIGN

The Sloan Canyon NCA Act also requires BLM to develop a plan for a public lands awareness campaign. As part of this plan, BLM would seek to increase cooperation with the other public land agencies (United States Forest Service, National Park Service, United States Fish and Wildlife Service, and the Nevada Department of Wildlife) to develop messaging on a variety of public lands issues, including the enforcement of existing litter laws and regulations. The campaign would include establishing and maintaining relationships with other federal, State, and local governments (City of Henderson, Boulder City, and Clark County) to assist in public lands messaging.

Several existing programs, foundations, and partnerships address littering on federal lands in southern Nevada. The Sloan Canyon NCA would optimize resources and increase efficiency by utilizing and integrating with these established programs to increase public education and awareness and to maintain and improve on current volunteer programs. In addition, public land agencies would develop strong relationships with local media for delivering public lands messages, including anti-littering messages and notifications of upcoming cleanup events.

APPENDIX H

Vegetation Restoration Strategy

VEGETATION RESTORATION STRATEGY

The primary goal of the Vegetation Restoration Strategy is to improve vegetation conditions in the Sloan Canyon National Conservation Area (NCA) through the restoration of existing disturbances and the management and control of future disturbances. The overall objective of the restoration strategy is to improve habitat for sensitive species by restoring ecological processes and functionality. Consideration of recreation management, livestock grazing management, and wildlife habitat management, as well as vegetation and soils management, are necessary components of the restoration strategy.

Specific priorities for restoration, and objectives associated with each restoration priority, are outlined in Table H.1.

Table H.1. Restoration Goals and Objectives

Restoration Goals	Objectives of Restoration
Ecosystem Functionality	Water infiltration Hydrologic function Soil stability (including biological crusts) Vegetation structure and species composition
Habitat Restoration	Reducing fragmentation Increasing connectivity of native plant and animal populations
Route Camouflage	Restore natural vegetation community appearance Reduce inadvertent reuse of routes being restored
Aesthetics	Improve natural appearance of vegetation and meet VRM criteria
Existing Disturbance	Improve natural appearance of vegetation and meet VRM criteria

BACKGROUND

The vegetation resource in the Sloan Canyon NCA is representative of the Mojave Desert ecosystem, corresponding to Bailey's American desert and semi-desert province (Bailey 1995). The Vegetation Community Inventory of the Sloan Canyon NCA (BLM 2004) categorizes the vegetation resource of the NCA as the Mojave Desert community with the four major vegetation associations. Distribution of these vegetation associations within the NCA is primarily related to geomorphic landform patterns and elevation and is associated with bajadas, slopes, dry washes, and mid-elevation slopes. The four vegetation associations identified within the NCA are described in the following paragraphs.

Volcanic–Basalt Slope Association. This association is primarily located on upper elevations of the NCA associated with the basalt "spine" of the McCullough Range. Isolated patches of this vegetation association also occur in the NCA, primarily on slopes in the southwestern portion. Primary components of the association are volcanic rock, and the primary vegetation components are bursage, ephedra, and creosote. Secondary vegetation components are barrel cactus, perennial grass, and annual and perennial forbs.

Moderate Creosote Association (>%30 cover). This association is dispersed throughout the NCA in relatively level areas with less well-developed desert pavement. The primary vegetation component of the association is creosote. Secondary vegetation components are bursage, annual and perennial forbs, and annual grass.

Sparse Creosote/Bursage Mix Association. This association is the most prevalent vegetation association within the NCA. It is found on lower to mid-elevation slopes and contains level areas with

well-developed desert pavement. The primary vegetation component of the association is creosote. Secondary vegetation components are bursage, annual and perennial forbs, and annual grass.

Desert Wash Association. This association is distributed in the lower elevations and level areas of desert washes. Slopes in this vegetation association are level with well-sorted gravels and sands. Primary vegetation components are creosote, perennial grass, and annual and perennial forbs. Secondary vegetation components are cactus species, ephedra, and bursage.

Because of the extremely dry climate, perennial vegetation establishment is usually limited to years when precipitation occurs in higher than normal amounts. Annual plant species comprise a large ephemeral portion of each plant association. Annual plants grow only during the years when precipitation falls at the correct time and in a greater than normal amounts.

Because of mountainous conditions, limited water resources, and the lack of mineral resources, the Sloan Canyon NCA has experienced little grazing, off-highway vehicle (OHV) use, or mineral activities. Although vegetation associations within the NCA have experience physical and biological disturbance stemming from recreation use and past introductions of non-native plant species, erosion has been relatively low historically and vegetation cover is good. Disturbance to the vegetation resource in the NCA has increased in recent years because impacts from human activities related to urban expansion (e.g., recreational use such as hiking, OHV use, biking, including cross-country experiences) have continued to expand, increasing surface disturbance, vegetation loss, and the disruption of desert pavement. Surface disturbance occurring within the NCA increases the vulnerability of vegetation to invasive species infestation. Once colonized in disturbed areas, invasive species may be capable of out-competing native species, including Special Status Species in undisturbed areas.

PURPOSE AND NEED

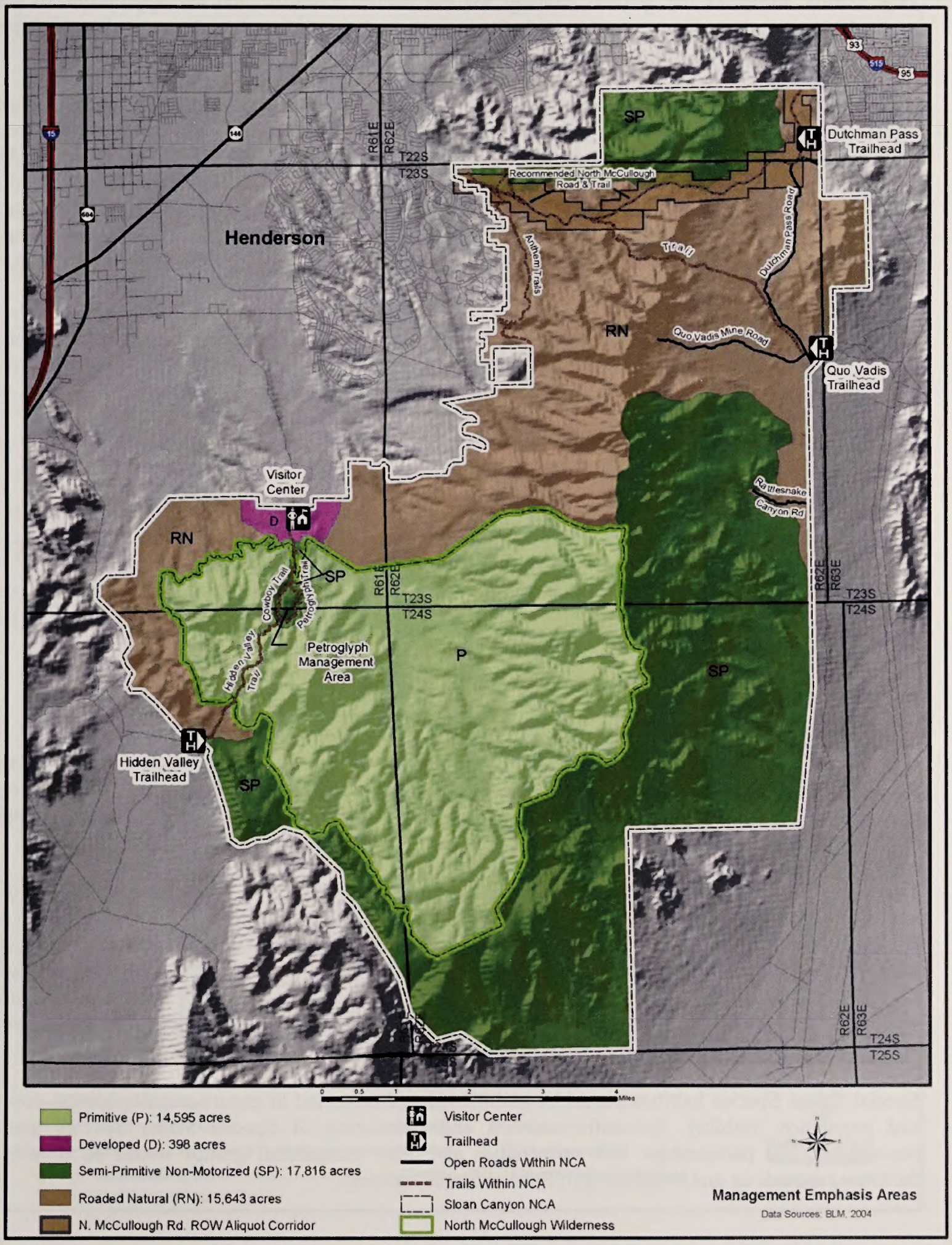
Vegetation in much of the NCA is relatively undisturbed. Restoration of existing disturbance and plans for controlling new disturbance are needed to direct restoration priorities within the Sloan Canyon NCA. By improving habitat for sensitive species and restoring ecological processes and functionality, the restoration strategy may result in the control of soil loss, maintenance of native plant associations, reduced vulnerability of vegetation associations to invasive species infestation, and enhancement of visual resources.

Project Prioritization

This vegetation restoration strategy would be applied to the entire NCA, including the North McCullough Wilderness. BLM would work with various local organizations and agencies to promote education and assist in preventing the establishment of invasive species. Furthermore, scientific research and monitoring of Special Status Species would be encouraged and facilitated through the development of partnerships with universities and other educational groups for research and monitoring of Special Status Species.

Priority for restoration projects would be focused in the Semi-Primitive Non-Motorized, Roaded Natural, and Developed Management Emphasis Areas (MEA) (Figure H.1) to restore or improve conditions in native plant associations. Areas of special concern where restoration projects would be considered include habitat for Special Status Species, areas with a high risk of wildfire (e.g., wildland-urban interface areas), and the North McCullough Wilderness. For example, restoration projects to remedy wilderness intrusions or incursions in sensitive species habitat and areas of entry would take priority.

Figure H.1. Management Emphasis Areas



RESTORATION METHODS

This section addresses the general strategy for the control methods that are appropriate to achieve vegetation restoration objectives. Methods focus on restoring existing disturbance and controlling new disturbances by activities managed by BLM within the NCA.

Under this strategy, future disturbance from activities with the NCA, including the North McCullough Wilderness, should be minor. Any impacts from activities on sensitive vegetation habitat should be minimized. Disturbance from development of visitor facilities or new rights-of-way (ROW) within the NCA should be minimized, and the potential spread of non-native species into such disturbed areas should be reduced. Overall, vegetation management included under this strategy should move vegetation associations toward potential natural conditions by reducing habitat fragmentation, improving species diversity, increasing structural diversity, and maintaining the long-term viability of the vegetation associations.

As strategy and policy are implemented, new methods would be considered and included in the strategy (e.g., biological control for tamarisk and Sahara mustard). BLM would evaluate new methods for their appropriateness and use within the NCA including the North McCullough Wilderness.

Existing Disturbance

BLM would apply the following strategy to maintain or improve the condition of vegetation on areas in the NCA currently affected by surface disturbance from OHV or other uses and development. The strategy emphasizes the improvement of protective ground cover and soil-holding capability in previously disturbed areas, which would reduce soil erosion and loss, reduce habitat fragmentation, and decrease the vulnerability of vegetation associations to invasive species infestation. About 100 miles of disturbance from roads, OHV trails, and foot trails have been identified within the NCA (see Figure H.2).

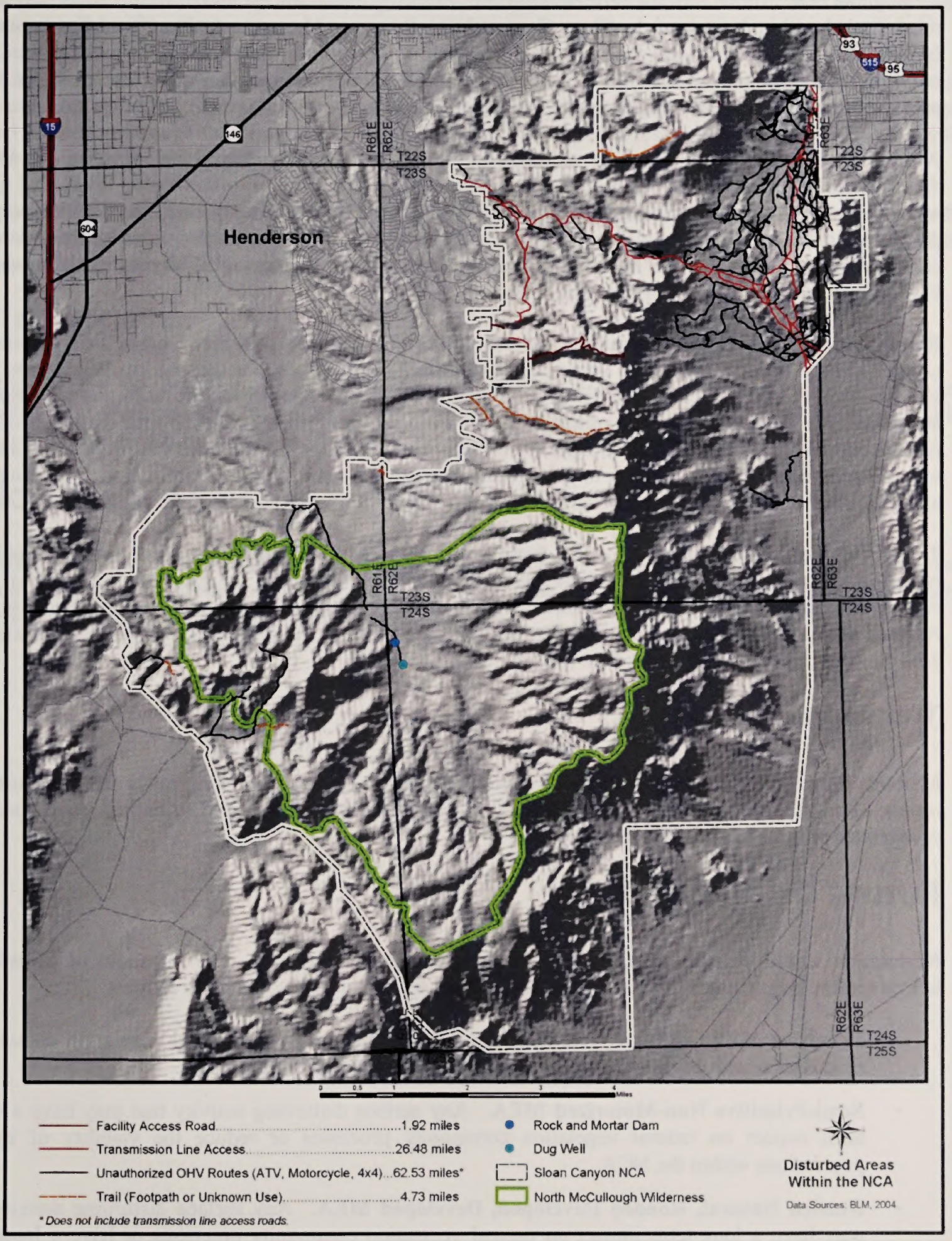
Non-Wilderness

Vegetation would be managed in all MEAs to promote native plant associations and restore species diversity and structure in disturbed areas. Restoration (i.e., rehabilitation, reclamation, and revegetation) of existing disturbances would be managed for optimum species diversity by seeding native species, except where non-native species are appropriate.

Trails established without BLM approval would be evaluated and may be restored to natural conditions or adopted into the trail system. The restoration of nonauthorized trails established within the NCA would not only decrease the likelihood that these disturbed areas would become dominated by invasive plant species but also improve the condition of the vegetative resource by reducing fragmentation of vegetation associations and improving population viability over the long term. Priority for restoration projects would be focused in Semi-Primitive Non-Motorized and Roaded Natural zones to restore or improve conditions in native plant associations.

Special Status Species habitats would be maintained and protected to ensure suitable habitat conditions and population viability. Scientific research and monitoring of Special Status Species would be encouraged, and partnerships with universities and other educational groups would be developed to facilitate research on and monitoring of Special Status Species.

Figure H.2. Disturbed Areas within the NCA



North McCullough Wilderness

Throughout the North McCullough Wilderness, existing disturbances and developments would be rehabilitated within 4 years of the Sloan Canyon NCA Resource Management Plan/Final Environmental Impact Statement Record of Decision using appropriate methods determined through a minimum requirement/minimum tool analysis for each project. Active rehabilitation would take place on those areas not currently rehabilitating naturally or located within washes.

Active rehabilitation would include methods/processes designed to remove and obscure the known disturbances. Methods/processes such as breaking up compacted surfaces; recontouring to original grade; seeding and/or planting of vegetation native to, and currently occurring within, the Wilderness; and placement of dead vegetation and rock, collected near the site, to mimic the form and texture of the surrounding landscape. In the interim, all access routes would be blocked using signs and/or natural barricades located outside the wilderness boundary.

Rehabilitation of existing disturbances and developments would be prioritized based on potential for continued use. Priority would be given to the two-track vehicle routes accessing the Wilderness from Hidden Valley, and vehicle routes, despite postings, that could continue to be used for unauthorized access into the Wilderness and are anticipated to be a management issue until such time that signs of their presence is obscured through rehabilitation. Although last priority for attention, in order to utilize the existing access and prevent damage to prior restoration efforts, removal and rehabilitation of the dug well and rock dam would be necessary prior to the rehabilitation of other two-track disturbances.

The visible portions of social trails not desired for future designation, modification, or use would be rehabilitated utilizing the same methods/processes previously identified for existing disturbances. The non-visible portions of these social trails would be left to rehabilitate naturally. Continued use of a restored social trail would be dispelled by dispersing visitation to other locations using methods such as area closures, barriers, and visitor information.

Transportation

Methods for restoring existing disturbance could be applied to restoring existing roads and transportation routes. For example, roads and unauthorized parking areas may be restored to natural conditions and revegetated with native vegetation species.

FUTURE DISTURBANCE

Restoration would be used to remediate future vegetation disturbance. The threshold of disturbance before minimizing impacts to native plant associations for each MEA could be as follows:

- **Primitive MEA.** Any surface disturbing activity that may alter natural vegetation community processes or reduce the viability of species populations within the NCA.
- **Semi-Primitive Non-Motorized MEA.** Any surface disturbing activity that may have a short-term impact on natural vegetation community processes or reduce the viability of species populations within the NCA.
- **Roaded Natural, Roaded Developed, Developed MEA.** Any surface disturbing activity that may have a long-term impact on natural vegetation community processes or have a long-term impact on species populations within the NCA.

Ongoing efforts to map, monitor, and eradicate invasive plant species would be continued. BLM would work with various partners to promote education and assistance in preventing the establishment of invasive species. In addition, landscaping of all developed areas within the NCA would use only plant species native to the NCA.

BLM would maintain and protect sensitive species habitats to ensure suitable habitat conditions and population viability. Scientific research and monitoring of Special Status Species would be encouraged and facilitated through the development of partnerships with universities and other educational groups for research and monitoring of Special Status Species.

Special Status Species critical habitat would be avoidance areas for disturbance or development in order to maintain suitable habitat conditions and population viability. Site-specific surveys for Special Status Species habitat would be required before any development activities.

Transportation

Methods for the management of future disturbance from construction of new ROWs, roads and transportation routes would be similar to those described above. Applications for new ROWs would be considered on a case-by-case basis if evaluation shows that the ROW would benefit the NCA.

Noxious and Invasive Weeds

Noxious and invasive weeds would be managed under integrated weed management principals, including following BLM's *Partners Against Weeds—An Action Plan for the BLM* (BLM 1996) and the general restoration strategy for the BLM Las Vegas Field Office.

LITERATURE CITED

Bailey, R.G. 1995. Description of the Ecoregions of the United States. Second Edition.

Bureau of Land Management (BLM). 1996. Partners Against Weeds—An Action Plan for the BLM.

_. 2004. Vegetation Community Inventory of the Sloan Canyon National Conservation Area. BLM Las Vegas Field Office. December 2004.

APPENDIX I

Biological Management Strategy

BIOLOGICAL MANAGEMENT STRATEGY

Prepared by
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1.0 INTRODUCTION

The study of wildlife species in recent times has become, of necessity, an effort to determine the impacts and results of human environmental development on animal populations. Along these lines, the study of the urban interface with undeveloped lands is becoming more important than ever.

The Sloan Canyon National Conservation Area (NCA) offers a unique opportunity to add data to the study of the effects of housing developments on several wild populations. As the surrounding communities of the City of Henderson and Boulder City continue to grow, several populations with extensive home ranges would experience the loss of some familiar habitats no longer available to them. The Bureau of Land Management (BLM) would research and monitor the health of these populations with the cooperation of universities and federal and State agencies. BLM would work cooperatively with the Nevada Department of Wildlife (NDOW), specifically on providing habitat for maintenance of population objectives and management activities designed to moderate populations (e.g., hunting, trapping, and transfer); and with the U.S. Department of Agriculture Animal and Plant Health Inspection Service/Wildlife Services in the management of wildlife (including Special Status and Sensitive Species, hunting, and trapping), recognizing respective management jurisdictions.

The goal of wildlife management for the Sloan Canyon NCA is to maintain and enhance native wildlife resources and provide for biological diversity of wildlife resources while ensuring healthy ecosystems. The objectives are—

- Manage to protect Special Status Wildlife Species and habitats in the NCA, including federally listed, State-sensitive, and Clark County Multiple Species Habitat Conservation Plan (MSHCP) species, according to existing law, regulation, policy, and/or agreement
- Maintain or enhance habitat quality and quantity to adequately support the life history requirements of a diversity of wildlife species
- Promote healthy and viable wildlife populations through appropriate habitat and species management actions that would lead to providing for ecological integrity within the NCA
- Protect important migratory bird habitat according to existing law, regulation, policy, and/or agreement.

The study of species addressed in this general management strategy may help maintain the ecological integrity and biodiversity of the NCA, may indicate through survey data when habitat is being fragmented, and can be used as a focal point for helping the public learn about and support conservation of natural resources in southern Nevada.

The species to be covered in this management plan would include those listed below. The desert tortoise (*Gopherus agassizii*) would be addressed through formal consultation with the U.S. Fish and Wildlife Service and therefore would not be considered in this management strategy.

Mammals

- Desert bighorn sheep (*Ovis Canadensis nelsoni*)
- Coyote (*Canis latrans)*
- Bobcat (*Felis rufus)*
- Grey fox (*Urocyon cinereoargenteus*)
- Kit fox (*Vulpes macrotis*)
- Cougar (mountain lion) (*Felis concolor*)
- Several species of small mammals (e.g., kangaroo rats [*Dipodomys* sp.]), desert wood rats (*Neotoma lepida*), pocket mice, grasshopper mice, and deer mice)
- Various species of bats (20 species of bats have been recorded in Clark County, Nevada).

The following bats are likely to be found in Sloan NCA:

- California leaf-nosed bat (*Macrotus californicus*)
- California myotis (*Myotis californicus*)
- Fringed myotis (*Myotis thysanodes*)
- Yuma myotis (*Myotis yamanensis*)
- Western pipistrelle (*Pipistrellus hesperus*)
- Big brown bat (*Eptesicus fuscus*)
- Spotted bat (*Euderma maculatum*)
- Pallid bat (*Antrozous pallidus*)
- Brazilian free-tailed bat (*Tadarida brasiliensis*)
- Big free-tailed bat (*Nyctinomops macrotis*).

Reptiles

- Western chuckwalla (*Sauromalus obesus*)
- Side-blotched lizard (*Uta stansburiana*)
- Western Whiptail (*Cnemidolphorus tigris*)
- Zebra-tailed lizard (*Callisaurus draconoides*)
- Desert spiny lizard (*Sceloporus magister*)
- Desert horned lizard (*Phrynosoma platyrhinos*)
- Collared lizard (*Crotaphytus insularis*)
- Desert iguana (*Dipsosaurus dorsalis*)
- Western banded gecko (*Coleonyx variegates*)
- Leopard lizard (*Gambelia wislizenii*)
- Gila monster (*Heloderma suspectum cinctum*)
- Coachwhip snake (*Masticophis flagellum*)
- Gopher snake (*Pituophis melanoleucus*)
- California kingsnake (*Lampropeltis getulus*)

- Mojave desert sidewinder rattlesnake (*Crotalus cerastes*)
- Mojave green rattlesnake (*C. scutulatus*)
- Southwestern speckled rattlesnake (*C. mitchellii pyrrhus*).

Amphibians

Red spotted toads *(Bufo punctatus*)

Birds—Resident Species

- Red-tailed hawk
- Prairie falcon
- Merlin
- Barn owl
- Great horned owl
- Common raven
- Verdin
- Screech owl.

Birds—Migratory Visitors

- Various hummingbirds
- Various warblers
- Swallow
- Oriole
- Eagle
- Peregrine falcon
- Rock Wren
- Burrowing owl
- Turkey Vulture.

2.0 BIOLOGICAL SURVEYS

This Biological Management Strategy for Sloan Canyon NCA identifies methods that may allow the collection of baseline data for addressing population numbers and ongoing efforts for determining long-term population trends.

An example of one important species in the NCA is the western chuckwalla described below. Two survey techniques for this species and their relative merits follow.

2.1 Western Chuckwalla (*Sauromalus obesus*)

The strictly herbivorous reptile diet of this species produces a scat of fibrose texture that is distinct in shape from other herbivorous reptiles. Chuckwalla scat varies in color from green (freshest) to brown to grey (oldest), is fibrose in texture, elongate and narrow in shape, measuring from about 15 mm (.6 in)

long by 3 mm wide (0.1 in) to about 70 mm (2.7 in) long by 10 mm (0.5 in) wide (B. Hardenbrook, pers. comm. 2005). Desert tortoise scat (although similar in appearance to chuckwalla scat) is larger in diameter and oval in shape, and most can be distinguished from chuckwalla scat. Generally, only scat of small tortoises may look exactly like small chuckwalla scat.

Chuckwallas were mostly observed between the hours of 10:30 to 15:30 (small sample size). Scat was observed at altitudes as high as 1,550 m (5,100 feet).

2.2 Survey Methods

One should be aware of climatic conditions: during a dry year, sightings would decrease because of food availability; sightings are expected to increase during a moist cycle.

Spotting Surveys (also known as "Visual Encounter Surveys" by NDOW; this method is not very effective). Spotting surveys are conducted by using scopes or binoculars to search for chuckwalla on rock outcrops. Surveys should be conducted when air temperatures do not exceed 40 degrees C (104 F). Surveys should be conducted during active season, i.e., mid-February to early June. During most years, mid-summer and winter surveys should be avoided. These surveys are conducted by several biologists, searching a small outcrop 2.5 to 7.5 acres for an hour or until a chuckwalla is seen, whichever comes first, then, moving to the next site.

Scat Surveys (this method is more effective). Scat surveys are conducted by several biologists who search an area less than 2.5 to 7.5 acres for 1 hour or until scat is located, whichever comes first. Surveys should be conducted using meandering transects to identify "valid chuckwalla scat" defined as generally at least 30 mm (1.2 inches) long and on rock outcrops where tortoises typically would not climb. The surface of rock should be recorded to determine if it is smooth or cracked, which would stop and trap scat.

2.3 Additional Survey Methods To Be Considered

Night Reptile Surveys. The roadless characteristic of Sloan NCA makes nocturnal surveys for reptiles difficult and more expensive than for roaded areas (e.g., Redrock Canyon NCA). The majority of reptile species surveys would need to be similar to these suggested for western chuckwalla.

Anabat Technology. It would be especially important to identify members of the bat community in Sloan NCA with the surveys using Anabat technology. This technology is used to detect the auditory signatures of bat species while feeding and to record the data on an associated computer.

Nesting Raptors. Surveys for nesting hawks can be conducted on foot or by helicopter. Surveys for burrowing owls include searching for adult owls with young when actively hunting for prey and searching for burrows because burrowing owls often use unoccupied desert tortoise burrows for shelter and nesting in season. Regular visits to cliff areas would reveal the presence of kestrels and great horned owls.

Mammal Surveys. NDOW would survey desert bighorn sheep according to the statewide protocol. NDOW, with the cooperation of BLM staff, would conduct the translocation of bighorn sheep on an as-needed basis.

One technique that can help determine the presence of mammalian predators (e.g., kit fox, gray fox, ringtails, bobcat, cougar, and coyote) is to place remote sensing camera arrays (camera traps) in the NCA. Scat and track surveys can be conducted for all the mammal species listed. Nocturnal spotlight surveys

can be used by personnel on foot in the NCA for most mammals. It is also possible to use trained dogs to help locate scats, kit fox dens, and fox use areas (although this method requires extensive training of the dogs employed). Kit fox should be in the vicinity of the water project because of the abundance of quail and other birds and insects.

Avian Surveys. In 2004, BLM personnel in the Sloan Canyon Area of Critical Environmental Concern, in cooperation with Great Basin Bird Observatory, conducted a point count survey of birds. This type of survey should be continued within the Petroglyph Management Area and expanded to other NCA areas during the breeding season to gather annual data about presence and density of nesting species.

The known nest sites of hawks, owls, and eagles (when located) should be visited and surveyed annually. At the time of this document's preparation, nesting owls were suspected in the NCA. Kestrel nest-sites and red-tailed hawk nests have been documented.

Winter surveys of the NCA would determine the extent and variety of the species using the habitat annually or periodically. NDOW indicates that Sloan Canyon is an important winter area for Merlin falcons. The importance of the Colorado River and its reservoirs for California condor and for bald and golden eagles indicates that Sloan may occasionally become usable habitat for these species but would not likely be used regularly.

Marking individual birds can be helpful in determining home range and seasonal use of a habitat by numerous species. Mist nets are a standard method for capturing birds for banding and other marking studies. Such studies may be warranted if general monitoring techniques indicate severe population changes.

3.0 PLANTS

The Blue Diamond cholla is a Nevada State plant species of concern found in limited areas of Sloan Canyon NCA. Any developments, facilities, and trails in the NCA must be sensitive to the distribution of this plant in the NCA. Any disturbance of this species would require BLM permitting.

Several penstemon species are BLM sensitive and may be found in the various washes in the NCA. Steps should be taken to mitigate fragmentation of these populations when developments, facilities, and trail construction take place in the NCA.

4.0 INVERTEBRATES

Little is recorded about the insects and other invertebrate species native to Sloan Canyon NCA. The actual community of these species is likely to be much larger and more diverse than is suggested by the following list. These representatives have been recorded in the NCA by various observers: desert cockroach (*Arenivaga sp.*), various flies of the order Diptera, pallid-winged grasshoppers (*Trimerotropis pallidipennis*), mud dauber wasp (*Sceliphron caementarium*), pepsis wasp or tarantula hawk (*Pepsis sp.*), velvet ant (*Dasymutilla gloriosa*), harvester ant (*Pogonomyrmex sp.*), funnel web spider (*Agelenopsis sp.*), orb weaver of the family Araneidae, desert recluse spider (*Loxosceles deserta*), black widow spider (*Latrodectus hesperus*), tarantula (*Aphonopelma sp.*), centipede (*Scolopendra sp.*), devil scorpion (*Vaejovis confuses*), giant desert scorpion (*Hadrusus spadix*), pinacate beetle (*Eleodes sp.*), honey bee (*Apis sp.*), and various moths and butterflies of the order Lepidoptera. The information about invertebrates is based on studies by Alex L Heindl of the University of Nevada, Las Vegas.

Various standard entomological survey techniques can be used to determine a baseline level for invertebrates in Sloan Canyon NCA: net sweeps, attracting specimens to nocturnal light traps, and other methods for specific conditions.

5.0 BIOLOGICAL SURVEY EXAMPLE

The following documents an example of a one-half day survey conducted in the Sloan Canyon NCA:

June 28, 2004, 7:00 a.m. until about noon

Bird Observations

Rock wren—several pairs, individual adults and young of the year.

- Black-throated sparrow
- Horned lark
- Gambel quail
- Common raven
- Young of year redtail hawk, possible prairie falcon
- Ash-throated flycatcher
- Say's phoebe (no swallows or swifts seen).

Mammals

- Antelope ground squirrels—a common sighting
- Nelson's desert bighorn sheep—tracks and droppings seen often in upper reaches of canyon and near the big game water project. Bones found were likely those of a young male desert bighorn (e.g., hip girdle, ribs, shoulder blade, no skull found)
- Bobcat droppings seen on four to six locations in the washes
- Cougar droppings seen twice
- Coyote tracks and droppings seen in many parts of the canyon
- No obvious droppings or tracks of any foxes.

Reptiles

The contractor saw adult and hatchling desert tortoise in Sloan Canyon NCA, but we did not find tortoise or sign on this date. We did not see Gila monster or sign during this visit.

We did not see any snakes during this visit. Although it was 89 degrees to a high of about 94 degrees while we were in the NCA, there was a very pleasant and strong wind blowing to help cool us as we worked. We looked diligently for chuckwalla in the normal locations, but we did not see even one. We did see the following lizards:

- Uta—side-blotched lizard—saw 8 to 11 (most common reptile in Sloan NCA)
- Leopard lizard—saw two individuals
- Desert Iguana—one or two seen

- Whiptailed lizard—a common sighting (about seven seen)
- Desert horned lizard—one seen, captured, and released
- Ants (the principal food for horned lizards)—seemed abundant in upper reaches of canyon
- Collared lizard—one very colorful specimen on a cliff above the water project
- Spiny desert lizard—one seen. We did not find any amphibians.

APPENDIX J

Comments and Responses

INTRODUCTION

Bureau of Land Management (BLM) announced the availability of the Draft Resources Management Plan (RMP)/Environmental Impact Statement (EIS) for public review and comment in the *Federal Register* on March 25, 2005. This announcement initiated a 90-day public comment period that ended on June 23, 2005. Governmental agencies, tribes, and the public were invited to submit their comments by mail, through the project website, electronic mail (email), facsimile transmissions (faxes), and at public hearings held on May 10 and 11, 2005.

Copies of the Draft RMP/EIS, in electronic or digital format, were mailed to members of the public who had commented during the scoping period; in addition, copies were made available at the information repositories, on the project web site, and distributed upon request.

1.0 PUBLIC HEARINGS

Two hearings were conducted to provide members of the public an opportunity to comment on the Draft RMP/EIS. The hearings were held on May 10, 2005, from 6:00 p.m. to 8:00 p.m. at the BLM Las Vegas Field Office and on May 11, 2005, from 6:00 p.m. to 8:00 p.m. at the Paseo Verde Library in Henderson. The total attendance for the two meeting was approximately 100 people.

The hearings were open to the public and as attendees arrived, they were asked to sign-in, and were given an opportunity to view displays, including how to submit comments, and take informational material such as copies of the Draft RMP/EIS. After introductory remarks by BLM and a slide presentation, individuals of the public were allowed 3 minutes each to voice their comments, which were recorded verbatim by a court reporter. Hard copy comments from the public were collected at the hearings. Additionally, the public was invited to submit comments by mail, fax, or email by the end of the comment period.

1.2 COMMENTS AND RESPONSES ON DRAFT RMP/EIS

BLM received about 550 comments on the Draft RMP/EIS from federal agencies; state, local, and tribal governments; public and private organizations; and individuals. These comments were presented as recorded statements at the public hearings, or in written documents submitted at those hearings or sent to BLM by regular mail, e-mail, and fax.

This appendix contains the comments BLM received on the Draft RMP/EIS, and BLM's response to those comments. For a number of topics, "summary comment responses" provide a single response to multiple comments on the same or related topics. Table J.1 (at the end of this introduction) provides references to responses for all of the comments received. This tables indicates the locations in this section where the reader can find particular comments and BLM responses.

BLM assessed and considered public comments on the Draft RMP/EIS both individually and collectively. Some comments led to RMP modifications; others resulted in a response to explain BLM policy, to refer readers to information in the Draft RMP/EIS, to answer technical questions and further explain technical issues, to correct reader misinterpretations, or to provide clarification. A number of comments provided valuable suggestions for improving the RMP/EIS. As applicable, the responses in this section identify changes that BLM made to the document as a result of the comments.

1.3 METHODOLOGY

Because a number of commenters had the same issues, BLM elected to extract and categorize comments and, as appropriate, group the same or similar comments for response. This approach enabled BLM to more efficiently consider, individually and collectively, all comments received.

The following list highlights key aspects of BLM's approach to capturing, tracking, and responding to comments on the Draft RMP/EIS:

- BLM read all comment documents (including those from transcripts) and their attachments to identify and extract comments. After comment identification, BLM grouped individual comments by categories and assigned each comment to an expert in the appropriate discipline to prepare a response.
- Frequently, more than one commenter submitted identical or similar comments. In such cases, BLM grouped the comments and prepared a single summary response for each group.
- To the extent practicable, BLM presented the comments in this section by topic. Each comment-response pair, individual or summary, consists of three parts: (1) the number of the submitted comment document and the comment number or for summary comments, the comment number, (2) the individual or summary comment, and (3) the response.
- To the extent practicable, this document presents the comments extracted from comment documents as stated by commenters. That is, with the exception of correcting obvious errors and other minor modifications, BLM has neither edited or rewritten the comments submitted. Comments grouped and summarized for response are, by necessity, paraphrased, but BLM made every effort to capture the essence of every comment included in the summary comment.
- BLM made every effort to be fully responsive to every comment it received on the Draft RMP/EIS. When the meaning of a comment is not clear, BLM made a reasonable attempt to interpret the comment and responded based on that interpretation.

1.4 ORGANIZATION OF THE COMMENTS AND RESPONSES

BLM extracted the individual comments from all the comment documents and categorized them according to the topical outline prepared for this section.

1.0 Abandoned Mines
2.0 Alternatives
3.0 Cultural Resources
4.0 Document Quality
5.0 Facilities
6.0 Fire
7.0 Grazing
8.0 Impacts
9.0 Lands and Realty
10.0 Purpose and Need
11.0 Recreation

12.0 Regulatory and Policy Issues
13.0 Transportation
14.0 Vegetation
15.0 Wilderness
16.0 Wildlife
17.0 Outside of Scope
18.0 Petroglyph Site Management
19.0 North McCullough Wilderness

1.5 HOW TO USE THE COMMENT-RESPONSE SECTION

Table J.1 provides alphabetical guides to the location of comments provided by organizations and individuals, respectively. To find a comment and the BLM response, locate the commenters name in the appropriate table and turn to the index locations listed. The identification number in parentheses after the index location identifies the section where the comment/response pair can be located. Although the number of the comments is not sequential, it is chronological.

As an example, Mr. Booth submitted a letter that contained 14 identified comments. If one wanted to read the BLM responses to Mr. Booth's comments, one would first find his name in Table J.1. The first column to the right of his name, indicates the document number, which is assigned as the comments were received. The last column contains the location of the responses to Mr. Booth's comments. For example, one is first directed to Section 2, summary comment response (SCR) 9; then section 2, SCR 26; and then eventually, section 4, comment response 443. Summary comments and responses are listed first in the appropriate sections.

Table J.1. Commenter Index

Commenter	Document Number	Location of Comments/Responses [Section (Comment Number)]
Adams, Paul	9	2(SCR9), 11(SCR1), 11(SCR5), 11(SCR6)
Anderson, Lester	88	11(SCR1), 11(SCR5), 18(278)
Astei, Howard LRCLV	60	2(SCR9), 11(SCR1), 11(SCR5), 11(SCR6)
Baldrica, Alice NV State Historic Preservation Office	127	2(SCR:9), 3(519), 3(520), 3(521), 3(525), 3(526), 3(527), 3(528), 3(529), 3(530), 3(531), 11(522), 11(SCR14), 11(SCR22), 18(SCR39)
Barber, Joe	102	11(SCR1)
Belcher, Jeffory	52, 92	11(SCR1), 11(SCR3), 11(SCR5)
Bennett, Christy	59	2(SCR9), 11(SCR1), 11(SCR5), 11(SCR6)
Bennett, Tom	58	2(SCR9), 11(SCR1), 11(SCR5), 11(SCR6)
Berg, Al Friends of Red Rock Canyon	39	11(SCR1)
Bien, Eric	32	11(SCR3)
Bonnett, Alberta Anthem Hiking Club	29	11(SCR1), 11(SCR4), 11(SCR7)
Booth, Howard	117	2(SCR9), 2(SCR26), 4(443), 4(444), 4(SCR27), 11(434), 11(435), 11(437), 11(440), 11(441), 11(SCR3), 11(SCR4), 11(SCR14), 13(436)
Bradley, Martin	50	11(SCR1), 13(SCR43), 16(111), 19(117)
Brennam, Brad	62	2(SCR9), 11(SCR1), 11(SCR5), 11(SCR6)
Brown, Ray	107	2(SCR9), 11(SCR1), 11(SCR5), 11(SCR6)
Campbell, Thomas	40	11(SCR3), 11(SCR4), 12(78)
Carey, Michael Sun City Anthem Hiking	15, 86, 93	4(SCR27), 11(SCR3), 11(SCR1)
Carl, Bob	61	2(SCR9), 11(SCR1), 11(SCR5), 11(SCR6)
Carr, Ellen	22	11(SCR2), 11(SCR3), 11(SCR4), 13(49)
Carr, John	21	11(SCR2), 11(SCR3), 11(SCR4), 13(45)
Chadwick, Ralph	90, 98	12(SCR11), 13(281), 13(283)
Cheema, Andy Land Rover Club Las Vegas	57	2(SCR9), 11(SCR1), 11(SCR5), 11(SCR6)
Clinard, Gary Dunes and Trails ATV	129	11(SCR:1)

Commenter	Document Number	Location of Comments/Responses [Section (Comment Number)]
Club		
Coratello, Vince	78	11(SCR1)
Corey, Joseph	105	2(SCR9), 11(SCR1), 11(SCR5)
Cox, Pamela	36	11(71), 11(SCR3), 11(SCR:4)
Dodrill, Ed Southern Nevada Regional Trails Partners	35, 111	11(68), 11(SCR1), 2(SCR9), 11(374), 11(382), 11(SCR1), 11(SCR3), 11(SCR4), 11(SCR9), 11(SCR14), 11(SCR25), 11(SCR41), 11(SCR42)
Dressman, Frank	13	11(SCR3), 11(SCR4), 11(SCR10)
Dunn, Joan Friends of Nevada Wilderness	94	11(SCR3)
Dunn, Leslie	95	11(SCR7)
Farmer, Lisa Las Vegas Valley 4 Wheelers	71	11(SCR1)
Feldman, Jane Sierra Club Southern NV Group	103	2(SCR26), 5(SCR29), 5(SCR30), 10(SCR8), 11(SCR3), 11(SCR4), 11(SCR14), 12(SCR11), 18(SCR40), 19(SCR32), 19(SCR33)
Fowler, Robert	45, 46	11(SCR4), 18(88)
Fujii, Laura EPA Environmental Review Office	125	8(514), 8(515), 8(516)
Fuller, Steve	2	11(SCR5)
Fuller, Tracy	3	11(SCR5)
Gardberg, Jerome	25	11(SCR3)
Gerber, Jared City of Henderson	124	19(512), 19(513)
Ghaimu, Beverly	38	11(SCR5)
Gomez, Blas	24, 96	11(SCR1), 11(SCR7), 11(SCR10)
Goodman, William	63	2(SCR9), 11(SCR1), 11(SCR5), 11(SCR6)
Greene II, Ellis	118	4(446), 5(491), 5(SCR30), 11(SCR10), 11(SCR25), 11(SCR42), 17(454), 18(449)
Grossman, Leonard	23	11(SCR2)
Hall, Nancy	101	2(SCR26), 17(308)
Hardenbrook, D. Bradford	128	1(573), 2(533), 2(SCR9), 4(556), 4(559), 4(SCR27),

Commenter	Document Number	Location of Comments/Responses [Section (Comment Number)]
NV Department of Wildlife		6(536), 11(537), 11(538), 11(540), 11(544), 11(548), 11(549), 11(SCR1), 11(SCR21), 11(SCR25), 13(51), 14(557), 14(SCR35), 15(558), 16(545), 16(547), 16(550), 16(551), 16(552), 16(554), 16(555), (535)
Harris, Michael	87, 97	11(SCR1), 11(SCR5), 11(SCR7), 16(269), 16(274), 12(569), 17(302)
Hiatt, John Red Rock Audubon Society	114	2(SCR26), 6(399), 6(492), 7(401), 10(SCR8), 11(SCR14) 11(SCR24), 11(SCR25), 14(SCR35), 15(SCR36), 16(406), 16(SCR38)
Hill, RoseAnn	41	11(SCR3), 11(SCR:4), 12(81)
Hirschlor, Rochelle	6	11(SCR5)
Hoversten, Mark UNLV Landscape	120, 130	2(SCR26), 5(SCR29), 11(SCR21), 11(SCR24), 14(SCR34), 14(SCR35), 18(SCR39)
Howland, Steve	49	2(SCR26), 4(SCR27), 5(SCR29), 10(SCR8), 11(SCR5), 11(SCR6), 18(SCR39)
Hyatt, John	79	10(SCR28), 11(SCR1), 11(SCR14), 16(242), 16(243), 11(246), 21(SCR:39)
James, Bill Friends of Sloan Canyon	110	2(SCR26), 11(SCR1), 11(SCR3), 11(SCR4), 11(SCR14), 11(SCR24), 12(SCR11), 14(SCR34), 16(SCR37), 16(SCR38), 19(SCR32)
Jensen, Marc	116	2(SCR:9)
Johnson, Stephen	106	2(SCR9), 11,(SCR1), 11(SCR3), 11(SCR5)
Jones, Leonard	7	11(SCR5)
Jones, Susan UNLV Landscape	121	2 (SCR26), 5(SCR29), 11(SCR21), 11(SCR24), 14(SCR34), 14(SCR35) , 18 (SCR39)
Kolacz, John Land Rover Club of Las Vegas	66	2(SCR9), 11(SCR1), 11(SCR5) , 11(SCR6)
Lanier, Linda Sun City Anthem Hiking and Outing Club	16	11(SCR3), 11(SCR4)
Lanier, Lynn Sun City Anthem Hiking and Outing Club	131	11(SCR2), 11(SCR6)
Levy, Seth American Hiking Society	115	2(SCR26), 5(SCR29), 11(408), 11(418), 11(421), (SCR1), 11(SCR10), 11(SCR14), 11(SCR21), 11(SCR22), 11(SCR25), 11(SCR41), 14(SCR35), 15(SCR36)
Little, David	108	2(SCR9), 11(SCR1), 11(SCR5)

Commenter	Document Number	Location of Comments/Responses [Section (Comment Number)]
Lofgren, Holli	18	11(SCR3), 11SCR4)
Machon, JoAnn	43	11(SCR3)
Machon, Rick	42	11(SCR3)
McDonald, Dea Sun City Anthem	33	11(SCR4)
McLean, C	132	11(SCR3), 11(SCR4)
McLean, Patricia	44	11(SCR2), 11(SCR4)
Meyer, Larry	17	11(SCR3), 11(SCR4)
Miller, LeAnne Southern Nevada Water Authority	119	19(456)
Moore, Carl	47	2(SCR26), 11(96), 11(97), 11(99), 11(SCR1), 11(SCR7), 13(SCR43), 19(94)
Moore, Lloyd	31	15(63)
Mrowka, Rob Clark County	133	11(571), 16(572)
Murphy, Robert	20	11(SCR2), 11(SCR4), 13(41)
Murray, Robert	89	11(SCR5), 12(SCR11)
Or, Jeffrey	72, 83	2(SCR26), 11(SCR4),10(SCR28)
Parris-Washington, Christine Las Vegas LandRover Club	64	2(SCR9), 11(SCR1), 11(SCR5), 11(SCR6)
Pooton, JoAnn	19	11(SCR3), 11(SCR4), 11(SCR6)
Rabick, Joseph	30	11(SCR3), 11(SCR4), 11(SCR6)
Rautenstrauch, David	75, 80, 84, 109	11(SCR1), 13(232), 2(SCR:9), 11(SCR5)
Reyling, George Sun City Hiking Club in Anthem	48,51,85	4(SCR27), 11(SCR3), 11(SCR4). 11(SCR2), 10(SCR8)
Rios, George	122	11(SCR5)
Robertson, Terri Friends of Sloan Canyon	82	4(SCR27), 10(SCR28)
Rugh, Art Sun City Anthem	27	11(SCR4)
Rugh, Pat	28	11(SCR4)

Commenter	Document Number	Location of Comments/Responses [Section (Comment Number)]
Sun City Anthem		
Schaefer, Terri	100	11(SCR1), 11(SCR2), 19(306)
Seyfried Jr., William	104	2SCR26), 5(SCR29), 5(SCR30), 10(SCR8), 11(SCR3), 11(SCR4), 11(SCR14), 12(SCR11), 18(SCR40), 19(SCR:32), 19(SCR33)
Shanklin, Diane	65	2(SCR9), 11(SCR1), 11(SCR5), 11(SCR6)
Shaslowee, Ken	4	11(SCR5)
Sherratt, Russ Las Vegas Valley 4 Wheelers	74	11(229), 11(SCR1), 12(227)
Sherratt, Russ Las Vegas Valley 4 Wheelers	81	11(SCR1), 11(SCR14), 16(251)
Smith, Michael National Trust Historic Preservation	123	2(SCR26), 3(506), 3(507), 3(508), 4(SCR:27), 7(505), 8(500), 8(504), 10(SCR8), 11(498), 11(SCR1), 11(SCR10), 11(SCR25), 13(503)
Trinko, Mark Clark County MSHCP	70	2(SCR9), 11(SCR1), 11(SCR6)
Unreadable	37	11(SCR5), 18(73)
Unreadable	5	11(SCR5)
Urban, Ben	14	11(SCR3), 11(SCR4)
Van Ee, Jeff Nevada Outdoor Recreation Assoc.	53	15(SCR36), 17(131), 19(129), 19(130)
Vasconi, Bill Fraternity of the Desert Bighorns	54, 77,	16(132), 16(133), 16(134), 16(238), 16(SCR37)
Wade, Darrell	76	11(SCR1), 11(SCR14), 11(SCR:25), 13(233)
West, Favil Sun City Anthem	34, 91, 99	11(SCR4), 13(285), 11(SCR3)
Woodard, Rob Nevada Power Company	73	9(225)
Woody, Alanah NRAF	113	3(387), 3(388), 3(389), 3(392), 5(SCR29), 11(SCR14), 11(SCR21), 11(SCR22), 18(SCR39)

1.0 ABANDONED MINES

1(573)

Comment: Page 3-70, Abandoned Mines: There is no mention of performing wildlife surveys of abandoned mines prior to any closing as by backfilling. Survey should be a standard operating procedure in the event that animal occupancy warrants another course of action, such as installing a bat gate.

Response: As described in the Standard Operating Procedures section of Appendix A, if additional abandoned mines are found within the NCA, BLM would either remediate per the *Final Programmatic Environmental Assessment for Remediation of Abandoned Mine Safety Hazards*, or, if necessary, prepare a site-specific environmental assessment. The final Programmatic Environmental Assessment addresses impacts to wildlife, including those to bats.

2.0 ALTERNATIVES

2(SCR 9)

Summary Comment: Commenters recommended that BLM choose Alternative B or Alternative D as the preferred alternative. Some commenters felt that Alternative B would preserve and protect resources within the NCA and complies with the purpose and intent of the NCA. Some commenters felt that Alternative D would allow for more recreational uses, including OHV use, which they believe reflects Senatorial discussions. On the other hand, a commenter felt that Alternative B was unrealistic in addressing public use demands of the NCA. Another commenter felt that Alternative D would not preserve and protect resources in the NCA.

Summary Response: Alternative C is the preferred alternative, and is the basis for the proposed plan, because it provides for moderate levels of developed recreation, facilities, and transportation with management actions to ensure that neither resources nor visitor experiences are unacceptably degraded. The preferred alternative, selected from a range of reasonable options, represents an effort to provide balance in managing both resources and uses within the Sloan Canyon NCA. The criteria considered in selecting the preferred alternative included environmental impacts of the alternatives; issues raised through the planning process; public and cooperating agency input; the spirit and intent of the Clark County Act; NEPA; FLPMA; and the BLM Land Use Planning Handbook (H-1601-1).

2(SCR26)

Summary Comment: Commenters stated their support for Alternative C

Summary Response: The preferred alternative, Alternative C, which attempts to balance future visitor needs with resource protection, was selected after evaluating input from the public, cooperating agencies, and internal BLM resources specialists. Alternative C is preferred for all resources because it provides for moderate levels of developed recreation, facilities, and transportation while ensuring that neither resources nor visitor experience is unacceptably degraded.

2(533)

Comment: We remain very concerned to the extent management alternatives underscore entertainment of a greater variety of recreation-oriented activities. Perhaps this was unintentional through the Bureau's use of recreation-based analyses, concessions for certain enhancements in consideration of anticipated public demand, evolution of the Red Rock Canyon experience, and a congressional deadline of November 2005 in which to have a completed Sloan Canyon NCA RMP. While useful for planning concerning the human environment from the human perspective, recreational approaches do not adequately capture or confer perspectives and considerations necessary for appropriate conservation of biological, wildlife, and ecological processes. Change to the area, to the region, is inevitable, but we must no diminish the fact that

the entire land base of the Sloan Canyon NCA is home for one or more T&E or special status species that have lost populations and habitat elsewhere in southern Nevada. In this instance, we believe conservation and protection of biological and wildlife resources go hand in hand with that of archaeological and cultural resources. Title VI of the Act of 2002 does not speak to recreational enhancement or invention, recreation per se is not even mentioned. We do appreciate the Bureau's efforts to take into account the inevitable demands on Sloan Canyon NCA by an ever-growing, urban-oriented population center. Nearby, urban encroachment and visitation demands at Red Rock Canyon over the last 30 years resulted in changes of its designation from a National Recreation Area to National Conservation Area. Unfortunately, the inertia of the recreation-based custom and culture associated with the Red Rock Canyon experience continues to weight management actions addressing a variety of traditional and emerging recreational pursuits. The result has complicated if not compromised attainment of the more recent conservation goals and objectives for the Red Rock Canyon NCA. The history of Red Rock Canyon is not, and should not carry over to the Sloan Canyon NCA. The Department strongly believes that managers are not obliged to accommodate the entire diversity of recreational demands from adjacent urban areas; and, the Sloan Canyon NCA should not become a recreational relief valve for Red Rock Canyon. A factor continually overlooked by many interests commenting on this planning process is that Sloan Canyon unit is a conservation area, not a recreation area. The primary effort should be to truly retain the existing cultural, natural and ecological character of the Sloan Canyon area.

Response: The PRMP recognizes that recreation is not one of the purposes for designating the Sloan Canyon NCA, as described in the Sloan Canyon Act, Section 602. As stated in the Sloan Canyon NCA Act, the purpose of the NCA is to conserve, protect, and enhance for the benefit of present and future generations the cultural, archaeological, natural, wilderness, scientific, geological, historical, biological, wildlife, educational, and scenic resource of the NCA. The type and range of management actions described in the Draft RMP/EIS were designed to manage the NCA in a manner that would meet the intent of the Act. Because the rapidly growing metropolitan area surrounding the NCA, recreation will undoubtedly be one of the primary uses of the NCA. For this reason, a primary component of the RMP is flexible management guidance so that impacts from recreation can be monitored and actions taken, as necessary, to minimize impacts from recreation to the NCA's resources.

3.0 CULTURAL RESOURCES

3(387)

Comment: The rock art documentation recommendations in the Sloan Canyon NCA Draft meet IFRAO standards, but I would advise that the recording process not be put off for too long. This is not something that should be done "as time and funding allows" but should be a priority. The level of recording should be Class III as noted in the Management Plan – something that does not currently exist for this area. A Class III requires scaled drawings for every panel – it is important that these are done in the field rather than from photographs later. The drawings are the best tool for land managers to assess changes to panels without having to refer to photographs that are sometimes less clear. This also allows documentation of other extant impacts that are not always apparent in photographs. Drawing techniques should be non-invasive – direct tracings, rubbings, etc should not be permitted for any reason. Photographic documentation is also required in a Class III as well as detailed mapping.

Response: Recordation and monitoring of the Sloan Canyon Petroglyph Site would be an ongoing process and both activities are currently underway. The methods and techniques employed would be identified at the activity planning level rather than the RMP.

3(388)

Comment: The monitoring program has actually already begun, but I would recommend a far more frequent schedule of site visitation [Rock art sites], than is currently the norm for the Clark County

program (quarterly). Sloan Canyon already gets a fair number of visitors and that is only going to increase - site monitoring should escalate along with that visitation. At a minimum, weekly visits should be made, focusing on weekends and holidays during peak periods of visitation, but that would need to be increased after public visitation is increased. I would also strongly encourage on-going training for monitors – the current level of training is inadequate to allow a full understanding of why certain procedures are to be followed.

Response: Over 50 site stewards have been trained and are organized by the Nevada State Historic Preservation Office. Additional trainings are occurring on a regular basis. BLM and volunteer presence in the Sloan Canyon Petroglyph Site, as well as the remainder of the NCA, would increase as visitor levels indicate the need for additional oversight.

3(389)

Comment: I would suggest that in the determination of which sites are at risk or are highly sensitive, comparisons of the known distribution of rock art sites with current and anticipated visitation patterns should be made. In my experience, it's best to assess site sensitivity based on actual visitation patterns rather than on projections or models. There are rock art sites outside of the main canyon that people are already visiting, that may or may not fit the Archaeological Sensitivity Model – but they should be documented fully as well.

Response: Monitoring plans for recreation use, Wilderness use, and the planning of future facilities such as trails all include cultural resource evaluations, which would serve to identify resources, evaluate effects, and take appropriate actions.

3(392)

Comment: It should be strongly urged that any mitigation of vandalism be undertaken only by a trained rock art conservator - never by anyone who does not specialize in this work. There are only a small number of qualified individuals, which does make it difficult to schedule, however much of the conservation work done currently is to repair earlier untrained conservation attempts.

Response: The concern is noted, but this issue is an activity plan element and does not require a Resource Management Plan decision.

3(506)

Comment: The National Trust is supportive of the Cultural Resources Management Plan (CRMP), which is provided in Appendix D.

Response: Thank you.

3(507)

Comment: Unfortunately, BLM does not outline management objectives and goals that indicate how BLM intends to proactively identify, evaluate, and nominate cultural resources to the National Register of Historic Places, as required by Section 110 of the National Register of Historic Places (NHPA).

Response: A 20 percent sample survey for cultural resources and an ethnographic survey to identify potential intangible properties have already been conducted. Monitoring plans for recreation use, Wilderness use, and the planning of future facilities such as trails all include cultural resource evaluations, which would serve to identify resources, evaluate effects, and take appropriate actions. Appendix D, the Cultural Resources Management Plan, has been modified by clarifying that all cultural resource management would be carried out in accordance with the BLM/Nevada SHPO Statewide Protocol, including allocation of resources and determinations of eligibility.

3(508)

Comment: BLM has not identified priorities and/or goals for cultural resource inventories, or even if it intends to conduct proactive inventories. We recommend that BLM add this information to the Proposed RMP/Final EIS and amend the CRMP to reflect the requirements of Section 110 of the NHPA.

Response: Monitoring plans for recreation use, Wilderness use, and the planning of future facilities such as trails all include cultural resource evaluations, which would serve to identify resources, evaluate effects, and take appropriate actions. Appendix D, the CRMP, has been modified by clarifying that all cultural resource management would be carried out in accordance with the BLM/Nevada SHPO Statewide Protocol, including allocation of resources and determinations of eligibility.

3(519)

Comment: Page 2-15: Cultural Resources Common to All Alternatives: Public Use and Conservation for Future Use categories are assigned that may conflict if applied to the same property such as the Sloan Canyon Petroglyph Site. As mentioned above, there is a delicate balance to achieve and it would require monitoring of sites and adjusting actions throughout the life of the plan. We agree with the BLM that the requirements of maintaining characteristics of the wilderness would also help maintain the qualities that qualify this property for the National Register of Historic Places.

Response: SHPO's continued collaboration on management guidance for the Sloan Canyon Petroglyph Site would be an important part of ensuring protection of this important cultural resource. Additional requirements for maintaining Wilderness characteristics are included in Appendix C, the North McCullough Wilderness Management Plan.

3(520)

Comment: Page 2-15: It might be wise to include a statement that BLM would continue to consult with the SHPO under the Nevada State Protocol Agreement regarding actions with the potential to affect National Register eligible and listed properties.

Response: Appendix D, the CRMP has been modified by clarifying that all cultural resource management would be carried out in accordance with the BLM/Nevada SHPO Statewide Protocol, including allocation of resources and determinations of eligibility.

3(521)

Comment: Another action common to all alternatives listed in this section regards the development and implementation of a monitoring plan. We strongly support to the use of site stewards to monitor Sloan Canyon Petroglyphs and other National Register eligible sites within the NCA but feel that two components to this program is missing: 1)What is the threshold of effects for sites other than those within the Wilderness Area? When does an effect require some kind of action? If BLM is using thresholds for maintaining the wilderness to judge effects to historic properties, what are the thresholds for sites in the remainder of the NCA? 2)What possible actions could be taken if effects cross the threshold? It is our understanding that effects within the Wilderness would trigger actions to restore wilderness and National Register values. What actions could be taken both in the wilderness and the remainder of the NCA in the event that adverse effects occur?

Response: The introduction of Appendix D, the CRMP has been modified to state that activity-level cultural resources plans would be developed in the future to implement the Sloan Canyon RMP. Thresholds that could trigger possible actions could include development of social trails to individual petroglyphs or outlying sites or overt acts of vandalism. Interrelated Wilderness and recreation monitoring, as well as thresholds established through a process such a Limits of Acceptable Change would be considered when taking cultural resource related actions. Actions that could be taken to protect cultural resources include temporary closures, graffiti removal, site surveillance, and natural barriers.

3(525)

Comment: Under Alternative C, BLM is obliged to conserve for future use, half of known rock shelters and approximately half of known rock art sites would be conserved for future use and traditional use. With only 10% sample of the area, how would managers know what is "half"? For example, what if all rockshelters and rock art sites outside the canyon proper have already been discovered and documented? It is possible to make adjustments in the future?

Response: A 20 percent sample of the NCA does not account for all sites and categories, but it does provide a sound basis for a commitment of resources. A portion of the 20 percent sample was nonrandom and archaeologists specifically targeted areas with settings similar to Sloan Canyon for rock art and rockshelters. No sites of the magnitude of Sloan Canyon were found. This approach provides good confidence that a large percentage of the sites have been identified. Adjustments would be made in the future if additional sites are found.

3(526)

Comment: This CRMP [Cultural Resources Management Plan] cannot be used in its present form to evaluate cultural resources in the NCA for National Register eligibility. Please see comments below: Page D-2, second and third paragraphs: How do these three levels of significance relate to National Register criteria? An archaeological site can be eligible for inclusion in the National Register regardless of whether or not it has uninterpreted information. It may have contained information important in understanding of prehistory (such as Lovelock Cave) that has been recovered, and still meet National Register criterion d. In addition, sites are eligible because they may fall under the other three criteria of significance. For example, the Sloan Canyon Petroglyphs are eligible under Criteria C because of their artistic merit. Couldn't other petroglyphs in the NCA similarly be evaluated? How does thos "cultural context and research design" apply to resources of the historic period? Themes are identified but not research issues that could be addressed. Last, how does this apply to evaluating properties of religious and cultural importance to tribes? This section needs some work to make explicit that the discussion solely regards prehistoric sites that might be eligible for inclusion in the National Register under criterion D. Or, the section should be amended to include discussions on all cultural resources and how they might be evaluated.

Response: These levels of significance provide context for framing research questions for the NCA are not intended to be significance criteria for determining eligibility of historic properties. Appendix D, the CRMP has been modified by clarifying that all cultural resource management would be carried out in accordance with the BLM/Nevada SHPO Statewide Protocol, including allocation of resources and determinations of eligibility. In addition, the introduction of Appendix D, the CRMP has been modified to state that activity-level cultural resources plans would be developed in the future to implement the Sloan Canyon RMP.

3(527)

Comment: Page D-19: Once a determination is made that the remains are Native American, BLM must immediately notify and begin consultation with tribes. No activity must take place at the scene of discovery for 30 days until the appropriate tribe is identified and the BLM consults with the tribe regarding the disposition of the remains. No attempts should be made to excavate the remains. Why isn't this made explicit in the text?

Response: Part II of the CRMP has been modified to clarify Discovery Situations would be managed that in accordance with the BLM/Nevada SHPO Statewide Protocol.

3(528)

Comment: Page D-19 under 2: Consultation with tribes must precede any proposed treatment of burials discovered and any proposed excavation of sites. Advisory Council guidance dated May 19, 1999 states

that any archaeological site to be excavated must not contain or be likely to contain human remains, associated or unassociated funerary objects, sacred objects, or items of cultural patrimony. If the property, such as the Sloan Canyon Petroglyphs themselves, are significant for traditional cultural and religious importance to a tribe, they should not be excavated.

Response: All archaeological excavations would include a treatment plan for human remains and associated materials specifically designed for the project as part of the Archaeological Resources Protection Act (ARPA) permit application. As part of the permit application, interested tribes would be offered the opportunity to review and comment on the plan as part of the ARPA permit process. Thus, no excavation could occur without the opportunity for tribal input.

3(529)

Comment: Page D-21-23: Site monitoring should only be one means of tracking deterioration of sites in the Sloan Canyon NCA. Would it not be appropriate to discuss law enforcement in this session? The Nevada SHPO supports the use of concealed video cameras in areas of highest archaeological sensitivity. However, what would be the result should the BLM through its monitors or law enforcement note effects to a particular site? What steps would be taken to curb any abuses if noted? As mentioned above, reference to a range of actions that could be taken would be helpful. The implementation of a monitoring plan is only part of the equation for maintaining integrity of historic properties; there should be some reference to actions that might be taken if effects occur.

Response: The hiring and use of both Law Enforcement and Rangers (non-law enforcement) is an administrative action not requiring a decision through this WMP. Wilderness Rangers are the first line contact with wilderness and backcountry users; and are responsible for monitoring for a variety of potential unauthorized incursions into the Wilderness. All regulations would be enforced by BLM Law Enforcement Agents and Law Enforcement Rangers. Violators would be detected through periodic patrol and investigative follow-up to reports by the public, BLM and other agency employees.

3(530)

Comment: Page D-26: Is it realistic to consider the placement barriers in the Sloan Canyon Wilderness or is this only applicable to the remainder of the conservation area?

Response: Natural barriers such as transplanted native cholla or other plants could be used to deter unauthorized access.

3(531)

Comment: Is it possible for the CRMP to be amended or adapted to changing conditions as needed to protect the National Register listed and eligible properties of the Sloan Canyon NCA? If monitoring demonstrates continued degradation of resources, it is possible to add action measures for treating adverse effects?

Response: Yes. The introduction of Appendix D, the CRMP has been modified to state that activity-level cultural resources plans would be developed in the future to implement the Sloan Canyon RMP.

4.0 DOCUMENT QUALITY

4(SCR27)

Summary Comment: Commenters complimented BLM on the Draft RMP/EIS. Commenters noted that the Draft RMP/EIS was thorough, all-encompassing, and comprehensive.

Summary Response: Thank you. BLM appreciates the acknowledgement and attributes the quality of this plan to the time and effort contributed by the cooperating agencies, the interested public, and the BLM planning team.

4(443)

Comment: There was one omission in the Index that would have been helpful. This is the inclusion of Management Emphasis Area, an important concept that appears a number of times in the text, including each alternative.

Response: BLM apologizes for any inconvenience in finding Management Emphasis Area discussions. BLM encourages the use of digital files and electronic search capabilities for finding specific information. Consequently, an index is not included in the PRMP; however, digital versions of the document may be obtained from the BLM, Las Vegas Filed Office.

4(444)

Comment: I also note that Visual Resource Inventory in the index lists pages that discuss related Visual Resource Management but not Inventory. Visual Resource Inventory only comes up in the last two pages cited in the Index.

Response: BLM apologizes for any inconvenience in finding Management Emphasis Area discussions. BLM encourages the use of digital files and electronic search capabilities for finding specific information. Consequently, an index is not included in the PRMP; however, digital versions of the document may be obtained from the BLM, Las Vegas Filed Office.

4(446)

Comment: In some cases, I find the alternatives rather conflicting, not consistently structured, and/or difficult to understand. Specifics associated with the alternatives need another look, and few of us are able to root through the entire Summary of Alternatives.

Response: The Sloan Canyon planning team acknowledges that it can be difficult to comprehend the differences in the range of alternatives. Consequently, considerable thought was given to ensure the material was presented and simply as possible. Techniques such as summary tables (both in the Executive Summary and throughout Chapter 2), as well as the use of many color maps were employed to convey the range of management actions.

4(556)

Comment: Chapter 5, CONSULTATION AND COORDINATION: Most of Chapter 5 is missing.

Response: BLM apologizes for distributing a copy of the DRMP/EIS with printing errors.

4(559)

Comment: Finally, inclusion of a list of acronyms and abbreviations near the Table of Contents will be very helpful as many of the acronyms and abbreviations were not defined before their use.

Response: In the DRMP/EIS, the acronym list was included after Chapter 5 and before the Glossary. It is in the same position in the PRMP. Acronyms and abbreviations are defined in the first use in every chapter.

5.0 FACILITIES

5(SCR29)

Summary Comment: Commenters suggested that a visitor center be built as close to the NCA boundary as possible. While another commenter suggested that a visitor center should not be built in the NCA, but instead should be located in the surrounding community. Commenters requested that the RMP contain a three-dimensional design vision, context-sensitive design guidelines, design vocabulary, design goals, and

design controls for proposed facilities in the NCA. Commenters suggested that signage, maps, and information in the NCA should be meaningful, educational and informative.

Summary Response: The Sloan Canyon NCA Draft RMP/EIS provides general guidance for BLM's management of the NCA. Specifics relating to the visitor center, facilities, signage, maps, kiosks, and design would be addressed in an Interpretive Plan and a Design Plan that would be developed following the RMP planning process. The Interpretive Plan would include the development of appropriate interpretive services, facilities, programs, and media that would reinforce interpretive themes and messages by instilling a sense of respect and appreciation of the cultural and natural resources. The Design Plan would consider design guidelines, vision, goals, and controls for facilities proposed in the NCA. In addition, the facilities would complement the NCA by directing visitor attention toward the NCA's resources and away from the urban development that immediately borders much of the NCA. There would be a focus on design consistency and visual quality that would communicate a sense of place, imitate natural landscape patterns, and minimally disturb resources during design, construction, and maintenance.

5(SCR30)

Summary Comment: Commenters stated their support for a parking area in Hidden Valley. A commenter recommended more trailheads and staging areas and suggested that they are linked to roads and trails for access.

Summary Response: The Hidden Valley Trailhead would serve as an access point to the southern portion of the NCA, and 3 similar access points have been proposed (the visitor's center, Dutchman Pass trailheads, and Quo Vadis Trailhead. As described in Section 2.4.8 of the PRMP, additional facilities could be added throughout the NCA, as needed, in accordance with applicable MEA objectives. The facilities would be planned designed and constructed through a systematic process that would evaluate needs, potential uses, and public interest as well as the preparation of an environmental assessment.

5(491)

Comment: For wilderness, facilities should be located at appropriate points on the edge. This is particularly important for the handicapped and less physically endowed.

Response: Section 2.4.8 discusses the facilities proposed as part of the RMP. In general, they are located near the NCA boundary rather than the Wilderness boundary, which lies inside. There are no roads to the Wilderness boundary so the administrative support of facilities would be difficult. More facilities could be added as needed to support visitor use and resource protection.

6.0 FIRE

6(399)

Comment: A consequence of this will be a dramatic change in the fire regime from one of rare and inconsequential fires to a regime of much more frequent, larger fires. What, if anything, can be done to prevent this transition is unknown but managers must be aware of the changes taking place, plan to deal with the situation.

Response: As discussed in Appendix A, fire management would be implement for the Sloan Canyon Fire Management Unit based on objectives included in the Las Vegas Field Office Fire Management Plan (BLM 1998b).

6(492)

Comment: Section 3.14 fails to recognize that past history is probably not a good guide to future fire behavior.

Response: Management actions presented in the PRMP would do little to change the fact that natural lightening ignitions are not common because of the sparseness and short stature of the vegetation, particularly on the rocky slopes and the ridgetops. Nonetheless, as Section 2.5.14 describes, maximum fire protection would be provided through a comprehensive fire detection system using a multi-agency approach.

6(536)

Comment: Widlife fire management in the Sloan Canyon NCA should incorporate suppression of wildfire similarly to that adopted for desert tortoise critical habitats and ACECs. As important is development of an Emergency Fire Rehabilitation (EFR) plan. In the case of the McCullough Mountains, natural seeding processes would be precluded due to consequential conditions of a lack in significant residual standing plant community, an existing seed bank, or an adjacent seed source. Prevention of red brome dominance and noxious weed invasion should be high priority objectives in developing the rehabilitation and seeding plan. Public Law 101-286 states "it is in the best interest of the Nation to take swift action to rehabilitate burned forests" and public lands. The Bureau of Land Management's EFR program is intended to reduce invasion and establishment of invasive and noxious species for vegetation thereby minimizing the potential of wildland fire recurrence. An EFR plan would seem in conformance with provisions stated in Sections 602 and 605 of Title VI of the Act of 2002 (aka Sloan Canyon National Conservation Area Act).

Response: As section 2.5.13 describes, a goal of the wildland fire management would be to keep wildfire size to an absolute minimum to prevent conversion to red brome and other non-native grasses. Maximum fire protection would be provided through a comprehensive fire detection system using a multi-agency approach and a NCA staff resource advisor would be consulted on all fire in the NCA. In addition, section 2.4.11, vegetation management, lists goals, objectives, and actions specifically designed to protect the natural condition and biodiversity of the NCA by preventing or limiting the spread of noxious and invasive weeks.

7.0 GRAZING

7(401)

Comment: Commercial livestock grazing in the NCA is really not appropriate and should be phased out at the earliest opportunity.

Response: Title II of the Clark County Conservation of Public Land and Natural Resources Act of 2002, which designated the Sloan Canyon NCA and the North McCullough Wilderness, states that grazing that was established as of the date of enactment shall be allowed to continue subject to reasonable regulation, policies, and practices (Title II, Section 205 (b)).

7(505)

Comment: There is very little analysis about cultural resource impacts associated with grazing. It is clear that only one grazing allotment exists, Hidden Valley Allotment, and that it is an ephemeral allotment. Draft RMP at 3-63-64. However, it is not clear how future, continued grazing, depending on climatic conditions, will impact cultural resources. Moreover, BLM has not analyzed whether grazing is compatible with the legislative purpose for Sloan Canyon NCA, nor has BLM identified specific forms of mitigation. All of this information would be helpful in evaluating BLM's management alternatives.

Response: Title II of the Clark County Conservation of Public Land and Natural Resources Act of 2002, which designated the Sloan Canyon NCA and the North McCullough Wilderness, states that grazing that was established as of the date of enactment shall be allowed to continue subject to reasonable regulation, policies, and practices (Title II, Section 205 (b)). The Hidden Valley allotment is open to livestock grazing, but because of the rugged terrain and lack of water, cattle typically do not wander into the NCA.

This behavior would be reinforced because placement of range improvements (water) would not be allowed within the NCA (section 2.3.15). Therefore, impacts to cultural resources would be negligible and were not included.

8.0 IMPACTS

8(500)

Comment: Alternative C does not provide enough information about specific resources that will be impacted by management decisions.

Response: Chapter 4 of the PRMP discusses the impacts that could occur from implementing the management guidance in the proposed plan.

8(504)

Comment: We recommend that the Proposed RMP/Final EIS examine in greater detail the direct and indirect impacts on cultural resources, as well as provide measures to mitigate those potential impacts.

Response: Chapter 4 of the PRMP discusses the impacts that could occur from implementing the management guidance in the proposed plan. The introduction of Appendix D, the CRMP has been modified to state that activity-level cultural resources plans would be developed in the future to implement the Sloan Canyon RMP. These plans would consider direct and indirect impacts from specific activities and would recommend mitigation actions, if necessary.

8(514)

Comment: The DEIS references standard operating procedures that will be used as guidance for activities related to management of the Sloan Canyon National Conservation Area (NCA) (Appendix A, Section 3.0). Examples include best management practices identified by the State of Nevada to minimize impacts to water quality and dust control permits obtained from local air quality management district. The document does not provide information on specific mitigation measures that will be used to reduce impacts from activities performed under the Resource Management Plan (RMP).

Response: Clark County has been designated by Governor of the State of Nevada as the organization responsible for regulatory compliance and oversight for air quality in southern Nevada. Specific air quality mitigation actions would be developed on a case-by-case basis as part of activity specific plans and permits. For example, planed construction activities are temporary in nature and fall under section 94 of the Clark County Department of Air Quality and Environmental Management regulations. Any construction disturbance greater than 1/4 acre requires a valid dust control permit from the DAQEM, which would stipulate best management practices and dust control measures. As described in section 3.15, because of the steep bedrock terrain essentially no groundwater sources existed within the NCA; however, the North McCullough Range does provide a relatively small amount of recharge to the alluvial aquifers in adjacent valleys. No perennial streams exist within the NCA. In addition, because of the very dry climate, the good vegetation cover, lack of grazing and mineralization and small OHV use, surface water quality is good. As required by the Federal Water Pollution Control Act (Clean Water Act) Section 208, all activities associated with water pollution problems must be planned and managed through an integrated, area-wide water quality management program through a 20 year planning horizon. Per the Nevada Revised Statutes, the Clark County Board of County Commissioners is designated as the Area-Wide Water Quality Management Planning Organization within Clark County. BLM would work with the Board's Water Quality Planning Team to fulfill responsibilities to develop and ensure compliance with area-wide water quality management plans. These plans present objectives, policies, programs, and an implementation schedule for managing water quality in the county.

8(515)

Comment: Potential effects from the construction of the North McCullough Road right-of-way are described in Section 4.2. Depending upon the selection of the northern or southern corridor, potential effects include disturbance to 1,154 acres of habitat of the federally endangered desert tortoise and significant erosion due to steep slopes. Impacts also include PM10 (particulate matter with a diameter of 10 microns or less) emissions from construction and operational activities (up to 13.1 tons/year and 42.4 tons/year, respectively). There is no discussion of mitigation measures that could reduce the effects of these environmental impacts. The Final Environmental Impact Statement (FEIS) should evaluate the feasibility of adopting mitigation to avoid, reduce or compensate for the adverse environmental impacts from construction and other activities under the RMP. All relevant, reasonable mitigation measures that could improve the project should be identified. In addition, because a portion of the NCA is in Las Vegas Valley PM10 nonattainment area, EPA recommends use of the following measures to reduce construction emissions of criteria air pollutants and hazardous air pollutants (air toxics): Reduce emissions of diesel particulate matter (DPM) and other air pollutants by using particle traps and other technological or operational methods. Control technologies such as traps control approximately 80 percent of DPM. Specialize catalytic converters (oxidation catalysts) control approximately 20 percent of DPM, 40 percent of carbon monoxide emissions, and 50 percent of hydrocarbon emissions; ensure that diesel powered construction equipment is properly tuned and maintained, and shut off when not in direct use; prohibit engine tampering to increase horsepower; locate diesel engines, motors, and equipment as far as possible from residential areas and sensitive receptors (schools, daycare centers, and hospitals); require low sulfur diesel fuel ([less than] 15 part per million), if available; reduce construction-related trips of workers and equipment, including trucks; lease or buy newer, cleaner equipment (1996 or newer model), using a minimum of 75 percent of the equipment's total horsepower; use engine types such as electric, liquified gas, hydrogen fuel cells, and/or alternative diesel formulations; adopt a Construction Emissions Mitigation Plan to reduce construction emissions; work with the local air pollution control district(s) to implement the strongest mitigation for reducing construction emissions.

Response: The Sloan Canyon NCA Act directed BLM to grant the City of Henderson a right-of-way for the North McCullough Road. In addition, the Act requires BLM to recommend a location for the North McCullough Road as part of the RMP. BLM recommends that the ROW be issued for the northern corridor. Any future development related to the road and trail would require additional environmental review, including resource mitigation. Please note that air quality mitigation measures for PM10, carbon monoxide, and ozone are specified in state implementation plans (SIP) for each criteria pollutant. The SIP for zone is currently in progress and is not due to be implemented until 2009. Specific air quality mitigation actions would be developed on a case-by-case basis as part of activity specific plans and permits. For example, planed construction activities are temporary in nature and fall under section 94 of the Clark County Department of Air Quality and Environmental Management regulations. Any construction disturbance greater than 1/4 acre requires a valid dust control permit from the DAQEM, which would stipulate best management practices and dust control measures.

8(516)

Comment: The Sloan Canyon NCA RMP covers a 20-year planning period. As stated in the document, the adjacent cities of Las Vegas and Henderson form one of the fastest growing metropolitan areas in the United States. Due to the proximity of these areas, environmental effects from this growth will have an impact on the NCA. Although references are made to these environmental pressures in the document, their impacts are not addressed in the cumulative impacts analysis. For example, the document states that air quality and hydrology are two resources that have the potential for cumulative impacts (p. 4-133). However, the document provides no analysis for how anticipated growth in the area will impact air quality in the NCA over the next 20 years. The document also indicates that the cumulative impacts on hydrology will be negligible without analyzing the potential impacts from groundwater development projects that might effect the numerous springs and seeps in the NCA and the flora and fauna that depend

on them. The FEIS should provide a substantive discussion of, and quantify where possible, the cumulative effects of the project when considered with other past, present, or reasonably foreseeable projects, regardless of what agency or person undertakes those actions. The document should also propose mitigation for all cumulative impacts, and clearly state the lead agency's mitigation responsibilities of other entities.

Response: The sentence that introduces section 4.16.4 was written incorrectly. The list of resource areas that have potential cumulative effects should not have been the entire list of resources, rather the resources with cumulative effects should have been: recreation, cultural resources, visual resources, lands and realty, vegetation, wildlife, and socioeconomics. Cumulative effects of all other resources, including air quality and water resources, are negligible and should not have been on the list. The text has been corrected in the PRMP. The determination of cumulative effects of air quality was based on the comprehensive air quality model developed by BLM for the Las Vegas Valley Disposal Boundary EIS. This study provided a quantitative assessment of future air quality trends in the Las Vegas Valley utilizing a state-of-the-art Eulerian dispersion model known as the Community Multiscale Air Quality model. This air quality model, which assess the air quality trends for the Las Vegas Valley could not distinguish changes in air quality related to new home development after land disposal actions from the overall changes in air quality throughout the region. Consequently, the cumulative impacts from the relatively small, short term construction projects proposed by this RMP would also be indistinguishable. As described in section 3.15, because of the steep bedrock terrain essentially no groundwater sources existed within the NCA; however, the range does provide a relatively small amount of recharge to the alluvial aquifers in adjacent valleys. No perennial streams exist within the NCA. In addition, because of the very dry climate, the good vegetation cover, lack of grazing and mineralization and small OHV use, surface water quality is good.

9.0 LANDS AND REALTY

9(225)

Comment: We [Nevada Power Company] currently have large transmission line corridors that go through the Sloan National Conservation Area. In the future, there will be a need to either upgrade those lines for additional power or just the actual need to go in there and maintain them. Right now, 75 percent of the power that comes from the southern portion of the valley goes through those couple corridors that go through Sloan. So with – I guess I'd like to see more specific language that would address any upgrading of those lines and any kind of maintenance that would need to be done over the next course of several years.

Response: Any maintenance and operational activities would be subject to the stipulations that accompanied the issuance of the ROW. As described in section 2.3.9, existing ROW grants may be modified to meet the intent of the Sloan Canyon NCA Act, and any amendments to existing ROWs would be considered on a case-by-case basis and authorized only if they serve the purposes of the NCA.

10.0 PURPOSE AND NEED

10(SCR8)

Summary Comment: Commenters requested that the NCA be managed for conservation and kept in its current state. A commenter suggested that recreational uses on other BLM lands should also be emphasized and utilized to protect the character of the NCA.

Summary Response: The proposed plan provides for moderate levels of developed recreation, facilities, and transportation with management actions to ensure that neither resources nor visitor experiences are unacceptably degraded. The proposed plan was selected from a range of reasonable options and

represents an effort to provide balance in managing both resources and uses within the Sloan Canyon NCA. The criteria considered in developing the proposed plan included environmental impacts of the alternatives; issues raised through the planning process; public and cooperating agency input; the spirit and intent of the Sloan Canyon NCA Act; NEPA; FLPMA; and the BLM Land Use Planning Handbook (H-1601-1).

10(SCR28)

Summary Comment: Commenters believe that the planning decisions presented in the Draft RMP/EIS are long term and affect the future visitors of the NCA.

Summary Response: The decisions contained in the Sloan Canyon NCA RMP will guide the future management of the NCA for the next 20 years. The RMP contains two types of decisions, land use planning decisions and implementing decisions. The land use planning decisions establish goals and objectives for managing the NCA's resources, including associated actions and uses. The implementing decisions constitute BLM's final approval for on-the-ground actions to proceed.

11.0 RECREATION

11(SCR1)

Summary Comment: Some commenters believe that an OHV area should be designated within the NCA, because the area has historically been used for OHV recreation for decades in the past. They suggest several areas that would be ideal locations for OHV use including the east side of the North McCullough Range and the south side of Black Mountain. These commenters state that responsible OHV users police themselves to minimize environmental impacts and that organized groups are have been very involved in land cleanups and reporting illegal activities. Commenters believe that OHV use provides many benefits, including providing access for people with limited mobility, and assisting in administrative activities such as fire fighting by creating new trails and preventing natural revegetation of old trails for access by fire vehicles, while causing little environmental damage. Suggestions for recreation OHV management range from identifying a relatively small fenced area, to designating existing roads and trails, to providing, creating, and developing new "extreme" trails with associated user fees. Commenters argue that it is unfair to eliminate OHV use while other forms of recreation, such as hiking and mountain biking are allowed and point out that OHV recreation is being restricted from many traditional use areas. Conversely, other commenters believe that OHV use should be banned from the NCA for various reasons, including its incompatibility with the Sloan Canyon NCA Act, the inherent damage to environmental resources, the difficulties for BLM to manage limited use areas if they were designated, and the fact the most of the NCA is in the Clark County non-attainment area for PM10.

Summary Response: Most of the western and northern portions of the NCA, including the areas that receive the greatest amount of unauthorized off-highway vehicle (OHV) use, are within Clark County's air quality nonattainment boundary for particulate matter. Off-highway use in this area has been prohibited by Clark County and the Las Vegas BLM since 1998 (Las Vegas Resource Management Plan). Unauthorized OHV activity has increased dramatically in recent years in the northeast portion of the NCA. As a result, numerous unauthorized routes and trails have been created and large portions of the area are experiencing resource damage from braided routes, habitat fragmentation, disturbance on steep grades, and the pioneering of new routes. Most importantly, the purpose of Sloan Canyon NCA, as directed by Congress in the Sloan Canyon NCA Act subsection 602, is "to conserve, protect and enhance for the benefit and enjoyment of present and future generations the cultural, archaeological, natural, wilderness, scientific, geological, historical, biological, wildlife, educational, and scenic resources of the Conservation Area." Subsection 605(c) of the Act states that the Secretary of the Interior is to "allow only such uses of the Conservation Area that the Secretary determines would further the purpose described under subsection 602" (above). The proposed management plan seeks to provide recreational

opportunities that are consistent with the directives provided by the Act. The BLM Las Vegas Field Office is very supportive of OHV use and recognizes OHV use as a legitimate use of public lands. While OHV opportunities are not available within the Sloan NCA boundaries, OHV opportunities exist in the adjacent BLM lands. The BLM Las Vegas Field Office manages approximately 2.1 million acres for OHV use, including the land adjacent to the Sloan Canyon NCA. The Jean/Roach Dry Lakes Special Recreation Management Area lies directly southwest of the Sloan Canyon NCA, between the McCullough Mountain Range and Good Springs, Nevada. This portion of public lands is managed for intensive OHV opportunities including OHV racing. Furthermore, the BLM Las Vegas Field Office, in cooperation with the National Park Service, the U.S. Forest Service, and the U.S. Fish and Wildlife Service, is working on a comprehensive OHV strategy for southern Nevada, that will include completing a recreation facilities inventory and OHV roads and trails inventory within Clark County. BLM will complete Recreation Area Management Plans for the approximately 2.1 million acres, that will specifically target recreation opportunities within these public lands. Completing these plans will also be a public process and participation is encouraged. Please contact the Recreation Department at (702) 515-5000 for more information or to be added to the mailing list for meeting notification of future recreation planning meetings.

11(SCR2)

Summary Comment: Commenters believe that only two hiking trails would be designated within the NCA under the preferred alternative. Some commenters suggested that cross-country hiking be allowed for the enjoyment and appreciation of the outdoor experience provided by the NCA.

Summary Response: This is not correct. Additional trails would be planned, designed, and constructed through a systematic process that would evaluate needs, potential uses, suitable destinations, and public interest, through an environmental assessment. Under the proposed plan, a hiking trail system with a wide range of uses is anticipated. Hiking trails would not be limited to the three rights-of-way for hiking trails that were previously issued to the City of Henderson, as prescribed by the Sloan Canyon NCA Act (one is included in the ROW for the North McCullough Road).

11(SCR3)

Summary Comment: Commenters indicated that it is not logical to limit hiking to designated trails where no trails currently exist (referring to the northern and western portions of the NCA (Area "L" on Figure 2.2)).

Summary Response: The proposed management plan has been modified to allow cross country hiking in "Area L" until BLM trails are established and in use, after which, some or all of "Area L" may be restricted to hiking on designated trails. Additional trails would be planned, designed, and constructed through a systematic process that would evaluate needs, potential uses, suitable destinations, and public interest, through an environmental assessment. Under the proposed plan, a hiking trail system with a wide range of uses is anticipated. Hiking trails would not be limited to the three rights-of-way for hiking trails that were previously issued to the City of Henderson, as prescribed by the Sloan Canyon NCA Act (one is included in the ROW for the North McCullough Road).

11(SCR4)

Summary Comment: Commenters felt that access to Black Mountain would be restricted and prohibited and recommended that the unauthorized trail constructed to Black Mountain be improved, maintained, and designated for hiking use. A few commenters requested that social trails to Sutor Peak and Hanna Peak be evaluated and improved as well.

Summary Response: The proposed plan has been modified to allow consideration of the unauthorized Black Mountain trail and social trails in the trail planning process described in GCR3. However, as on all

public lands, any unauthorized surface disturbance, including unauthorized trail construction, is prohibited.

11(SCR5)

Summary Comment: Commenters would like the NCA to remain open to all activities, OHV, horses, bicycles, family cars, hikers, dirt bikes, and recreational shooting, as it has been in the past. Commenters suggested that the NCA not be limited, closed off, or restricted. Some commenters requested that different interest groups, including OHV users have equal access to the NCA. A few commenters believe that only a small portion of the NCA is fragile, requiring protection, and that the public should be educated about the use of the area.

Summary Response: In November 2002, Congress designated the Sloan Canyon (NCA) to preserve and protect a portion of southern Nevada's Mojave Desert as a permanent asset for future generations. The Sloan Canyon NCA Act directs the Secretary of the Interior, through BLM, to manage the Sloan Canyon NCA in a manner that conserves, protects, and enhances the Conservation Area's resources for the benefit and enjoyment of present and future generations. The purpose of the Sloan Canyon NCA Act is to conserve, protect, and enhance the cultural, archaeological, natural, wilderness, scientific, geological, historical, biological, wildlife, educational, and scenic resources, which are important reasons for the establishment of the NCA. The designation of the North McCullough Wilderness, administered under the Wilderness Act of 1964 and the Clark County Act, Title II ("Wilderness Areas") (Appendix A), requires that 14,763 acres within the NCA be preserved and protected in their natural, primitive condition. In addition, the Sloan Canyon NCA Act and the Clark County Act, Title II ("Wilderness Areas"), sets a number of ground rules for the development of a management plan for the NCA and the Wilderness. Chapter 1, Section 1.1, of the PRMP contains additional information on the designating Acts. In addition, Section 605(c) of the Sloan Canyon Act requires the Secretary of the Interior to allow only those uses that would further the purpose of the NCA as defined by the Act. Consequently, not all recreational activities are appropriate for all area the NCA.

11(SCR6)

Summary Comment: Commenters offered to volunteer to mark, construct, improve, and maintain OHV and hiking trails in the NCA.

Summary Response: Currently, BLM is hosting volunteer desert cleanups for trash removal on a monthly basis. In addition, BLM has an established volunteer program that uses volunteers for wilderness monitoring and projects. Trails will planned, designed, and constructed through a systematic process which includes an environmental assessment.

11(SCR7)

Summary Comment: Comments regarding recreational shooting within the NCA ranged from strong support for a controlled area or range to recommendations that it be banned or be limited to specific areas.

Summary Response: As stated in Section 2.10.2 of the PRMP, designated target shooting facilities were not considered for several reasons: they are incompatible with the purpose of the NCA, there are existing recreational shooting facilities throughout the Las Vegas Valley, including Boulder City and North Las Vegas; and they generate hazardous materials through lead accumulation in bullet impact areas. Recreational shooting was banned in approximately the northern half of the NCA by the Las Vegas RMP in 1998. Unauthorized target shooting is a primary source of trash and waste deposits on the NCA and is a source of safety concerns because of the NCA's close proximity to residential areas. However, hunting, in conformance with State of Nevada laws and regulations (including distance from occupied buildings, etc.) is specifically allowed by the Sloan Canyon NCA Act.

11(SCR10)

Summary Comment: Some commenters requested that mountain biking be allowed in the NCA on trails because it is dangerous to ride on roads and it does not affect equestrian users. Some commenters requested that mountain biking be prohibited in the NCA because it can affect species habitats, spread invasive species, damage cultural resources, increase risk of injury, and increase erosion.

Summary Response: To reduce conflicts among users and to minimize resource impacts, mountain biking would be allowed on a limited system of designated multiple use trails and on designated vehicle roads. The trails would be planned, designed, and constructed through a systematic process that would evaluate needs, potential uses, suitable destinations, and public interest, through an environmental assessment.

11(SCR14)

Summary Comment: Some commenters suggested that campfires be allowed but be limited, restricted, or be prohibited in the NCA and the Wilderness. Commenters suggested that camping stoves be used for food preparation and campers should bring in fuel for campfires. A few commenters requested that BLM designate camping areas and as well as allow primitive, dispersed camping.

Summary Response: The proposed management plan has been modified to require that all fuels for campfires would have to be packed in and packed out, and no natural fuels in the NCA can be used. Based on public response and cooperating agency comments, BLM would encourage the use of portable gas, jellied petroleum, petroleum or pressurized liquid fuel stoves for cooking. Primitive, dispersed camping and associated campfires would be allowed in designated areas (see PRMP Figure 2.6) of the NCA. Constructed campfire rings and building fires against rock faces would not be allowed. Restrictions on fires, camping, and nighttime use of the Petroglyph Management Area would be implemented, with special circumstance exceptions.

11(SCR16)

Summary Comment: I believe that part of conservation is preserving the rights we have. Having off road access to desert near my home has provided my family with an enjoyable outlet to spend quality time together to some extent most every weekend of the year.

Summary Response: GCR that addresses comments that people want the BLM to allow all the activities that have been traditionally occurring in the NCA. (No change in management, such as the use of OHV, even though they have been prohibited since the LVRMP?).

11(SCR20)

Summary Comment: Supporting equestrian trails that form loops, and requests for site specific issues such as staging areas, trails, and weed free hay.

Summary Response: GCR that addresses specific equestrian trail issues such as loop trails, trailheads, weed free hay, and staging areas.

11(SCR21)

Summary Comment: Commenters suggested that dogs be limited or prohibited in the NCA because keeping dogs on a leash and picking up feces is not enforceable. Also, a commenter requested that dogs be kept on leashes in the NCA.

Summary Response: The proposed management plan has been modified to allow leashed dogs only in hiking areas "L" (Figure 1.1). Based on concerns for wildlife and human health and safety dogs would be prohibited in the remainder of the NCA. Dog feces would have to be immediately be picked up and packed out, and disposal bags would be available at trailheads for convenience and would encourage appropriate recreational behavior.

11(SCR22)

Summary Comment: Commenters suggested that rock climbing should be allowed in the NCA but not in the Sloan Canyon Petroglyph Site. One commenter suggested that rock climbing be prohibited in the NCA.

Summary Response: Traditional rock climbing with no permanent anchors and bouldering would be allowed throughout the NCA for visitors who enjoy the sport. However, rock climbing and bouldering would not be allowed in the Petroglyph Management Area and its northern access, and identified sensitive resource areas.

11(SCR24)

Summary Comment: Commenters requested that rock hounding be prohibited in the NCA.

Summary Response: The management plan has been modified to prohibit rock hounding throughout the NCA.

11(SCR25)

Summary Comment: A commenter suggested that equestrian trails should be designated as separate from hiking trails. Another commenter noted that hiking and equestrian use could be compatible. It was suggested that the NCA have equestrian loops and that equestrian users be allowed to camp with horses. Some commenters asked for no constraints on equestrian use. While another commenter requested that equestrian use be prohibited in the Sloan Canyon Petroglyph Site. It was suggested that equestrian use in the Wilderness should only be on designated trails and that no cross-country equestrian use should be allowed in the Wilderness. A commenter requested that equestrian use be prohibited from water at or near wildlife water developments. It was noted that it is not possible to monitor the use of certified weed free hay. Another commenter indicated that there is little or no analysis in the Draft RMP/EIS on the impacts of cross-country equestrian use, and that these impacts should be analyzed.

Summary Response: Equestrian use is provided for in the proposed plan. However, in addition to the management actions of the proposed plan, which take these comments into account, equestrian use would be limited by the fact that no water sources exist in the NCA. The use of wildlife waters for any other purpose is prohibited. As with all activities authorized within the NCA, the effects of equestrian use would be monitored and management can be adjusted within the parameters of the proposed plan in the future if effects warrant.

11(68)

Comment: An alternative designated as "preferred" that significantly changes prior usage of some of the land in SCNCA. Specifically, off highway vehicle use is prohibited throughout the NCA, off trail hiking is prohibited in the northwest quadrant (27% of the area) which borders the City of Henderson, and equestrian use is restricted to designated trails in the north half of the NCA most accessible to vehicle access(cross country use is allowed in the southern half). You should note that traditional use of significant portions of the NCA would be changed under this alternative.

Response: The Alternatives in the Draft RMP/EIS reflect multiple use management actions. This direction indicates that not all uses need to be accommodated in all areas. Not all areas would be open to all types of uses in the planning area. Additionally, not all areas would be open to uses in the same timeframe. Off-highway use in this area has been prohibited by Clark County and the BLM Las Vegas Field Office since 1998 (Las Vegas Resource Management Plan). Unauthorized OHV activity has increased dramatically in recent years in the northeast portion of the NCA. Within Las Vegas Field Office, approximately 2.8 million acres of public lands in Clark and Nye Counties are currently available for OHV use on existing roads, trails, and wash bottoms. The proposed management plan has been modified to allow cross country hiking in “Area L” until BLM trails are established and in use, after which, some or all of “Area L” may be restricted to hiking on designated trails. Additional trails would be planned, designed, and constructed

through a systematic process that would evaluate needs, potential uses, suitable destinations, and public interest, through an environmental assessment. Under the proposed plan, a hiking trail system with a wide range of uses is anticipated.

11(71)

Comment: I also support the Sun City Anthem board proposal that is against access through Anthem. Eastern and Anthem parkway are already overcrowded and have golf cart access. The speed limit has just recently been reduced to 35 mph because of the amount of traffic.

Response: Sloan Canyon is an NCA must be accessible to all who chose to visit the area. BLM is working closely with the City of Henderson to identify access routes as residential development continues to expand towards the NCA boundary. The alignment of the North McCullough Road ROW, was proposed by the City of Henderson in its ROW application to BLM.

11(96)

Comment: I am hoping that orienteering would be allowed, as it is in other NCAs in other states. Orienteer with compass and map proceed on foot from a designated parking area at staggered intervals to locate as quickly as possible coded markers placed on features in the terrain. Orienteering is designed to be gentle on the terrain. Orienteering markers are temporary and can be placed to avoid sensitive areas. The markers are placed and collected in a day or two. The location of the markers would change from event to event. Events would be limited to a few hours on one or two weekends a year. The number of participants is not large. (Currently (2005) there are only three active and experienced orienteers in the Las Vegas area.) Orienteer do not follow each other but walk or jog on routes of their own choosing. After the event, there would be no "user" trails in the terrain. It would certainly be appropriate to require a SRP for these events. Although I am not a professional mapper, I am working on an orienteering map of this area. I am forwarding a preliminary copy of this map which shows some of the area I have covered to Sarah Sutherland. Please do not copy the map. Perhaps BLM would have non-orienteering use for the finished map in the future and could copy it.

Response: Orienteering would not be allowed within the NCA unless a special recreation permit is issued, which would be issued at the discretion of the BLM Authorizing Officer.

11(97)

Comment: I note that geo-caching would be prohibited under the plan. This makes sense since the caching sites are permanent and there is a possibility of environmental damage near them. Also, there is not limit on the timing of visits and the number of participants. How many local geocachers are there? Nobody knows.

Response: The PRMP prohibits geocaching within the NCA.

11(99)

Comment: I have not seen a single human-powered mountain bike in the area [northeast]. And there are very few, if any, hikers. The area is so large and undeveloped and there are so many dry water-courses and OHV-made trails ready-made for hikers and bikers to explore that spending a lot of time and money developing hiking and biking trails would seem to be unnecessary.

Response: Unauthorized OHV trails do not meet trial design and construction standards, which are developed to protect natural resources. All roads and not designated for public use could be physically barricaded or restored to natural conditions.

11(229)

Comment: There's a lot of companies in the valley, Pink Jeep Tours is one of them that offer scenic trails or scenic rides for people. Have they been contacted or has that even been taken into account to set up where these companies can maintain a living here in the valley and provide the use for the people that come to visit? Which would be twofold, income for the company and income for the BLM, because I'm sure you're going to charge them a fee to a get a permit to do that.

Response: As stated in section 2.3.2 of the PRMP, outfitters and guides would be required to obtain a Special Recreation Permit to operation within the NCA.

11(374)

Comment: A gradual increase in the number of trails would help keep existing trails from being worn beyond repair.

Response: Under the proposed plan, a hiking trail system with a wide range of uses is anticipated.

11(382)

Comment: The proposed trailheads are all placed close to the roads which prevents traveling across the area with horse trailers. At least one or two areas should be provided where the unattended parked rigs are not visible from the road for obvious reasons. Many horse trailers now contain living quarters and rest rooms and they should be allowed access to areas where primitive camping is allowed. They do not need to be far from the roads, just out of sight.

Response: The proposed facilities and trail heads are discussed in section 2.3.8. Camping is not allowed at the proposed facilities (Figure 2.6) and permits for overnight parking to support activities such as camping and night riding would be required and issued in accordance with NCA policy.

11(408)

Comment: Trail use should be restricted to designated trails, and cross country hiking should be restricted. Un-controlled cross country hiking can fragment habitats, increase the spread of invasive species and risk the damage of undocumented cultural and historic resources. Hiking trails must be established and maintained to allow hikers access while simultaneously mitigating excessive impact.

Response: Under the proposed plan, a hiking trail system with a wide range of uses is anticipated. Based on likely amounts of use and in and effort to preserve visual and biological resources the use areas were designated for different types of hiking. Near the populated areas and trail heads, trail use areas were identified. In this area, hikers must stay on trails once they are established and in use. Cross country hiking is allowed within the remainder of NCA. In the Wilderness, social trails resulting in resource damage would be restored.

11(418)

Comment: Cross country hiking should not be allowed in the Wilderness. Hiking in wilderness areas should be restricted to designated trails. Accordingly, hiking trails should be built that manage access while diminishing overall erosion and impact.

Response: Three trails are designated in the Wilderness under the proposed plan. Additional trails would be added to the system as need arises, provided natural and wilderness characteristics are not substantially impacted.

11(421)

Comment: "Restore new social trails after completing an minimum requirement/minimum tool analysis." This language should be struck and replaced with the language, verbatim, from "Alternative B:" "Restore

visible portions of new social trails using nonmechanized means and native vegetation. Restore non-visible portions naturally."

Response: The restoration of social trails located in the Wilderness are discussed in detail is sections 4.1.1 and 4.12 of the Wilderness Management Plan, Appendix C.

11(434)

Comment: My main problem with Alt. C is with the MEA Semi-Primitive Non-Motorized Zone (P 2-56), which in the Draft extends only along the east slope as far north as the Rattlesnake Canyon Road and its extension west. I think that this zone should extend north along the range crest to encompass Black Mtn summit and should also include at least portions of both the east and west slopes of Black Mountain. Black Mountain is the high point of the dramatic crestline which extends north from within the wilderness with no change in defacto wilderness characteristics. It is an icon for the range and this crestline, which represents the culmination of the range, and is the one primitive feature in the NCA coveted by most hikers. I am amazed that the wilderness boundaries did not encompass the peak. I don't this it should be placed in a MEA Roaded Natural Zone where one might even conceive of future access by, or identification with, a road.

Response: The MEA map has been extended further north along the eastern side of the escarpment.

11(435)

Comment: I also believe that the MEA Semi-Primitive Zone should encompass the eastern escarpment, and in fact the entire east slope strip, as far north as the Quo Vadis Mine Road, as depicted in Alt. B. This area is inherently part of Black Mountain and largely contains the same characteristics as the depicted Semi-Primitive Zone farther south. It also lies within the Draft's VRM Class II area, which I think is most compatible with a MEA Semi-Primitive Zone. I don't think Rattlesnake Canyon Road, over its approximately 1-mile length, needs closure to be compatible with this proposal as it is a relatively obscure feature. Cross-country hiking as propose in Alt. C would be compatible with this change in Mea east slope zoning (P 2-59).

Response: The MEA map has been extended further north along the eastern side of the escarpment.

11(437)

Comment: The west slopes of Black Mountain, perhaps north to the access road to Black Mtn Communication Site, should in my view have MEA Semi-Primitive Non-Motorized Zoning. This embraces the idea that the slope is a feature of the Black Mountain icon with its character remaining as near to that of the wilderness farther south as is possible.

Response: The west slope of Black Mountain remains designated as roaded natural, based on the anticipated human interactions and the potential for trail development (see section 2.3.1).

11(440)

Comment: I do not believe trails should be provided within the North McCullough Wilderness unless necessary for resource protection, as for instance to solve a problem of a braided network of social trails that may develop.

Response: Three trails are designated in the Wilderness under the proposed plan. Additional trails would be added to the system as need arises, provided natural and wilderness characteristics are not substantially impacted. The restoration of social trails located in the Wilderness are discussed in detail is sections 4.1.1 and 4.2 of the Wilderness Management Plan, Appendix C.

11(441)

Comment: A uniform social trail in a certain area, as along a wash bottom, does not necessarily require a formal trail being constructed or the area closed, its presence merely defining a logical route to a

destination in a primitive setting. Sometimes, a short constructed segment may cure a resource damage problem without destroying the sense of wilderness that the simple path is in tune with. I guess this comes under the heading of LAC.

Response: Additional information on trail development in the Wilderness can be found in the Wilderness Management Plan, Appendix C.

11(498)

Comment: There is a discrepancy between the mileage provided for all unauthorized OHV routes within the NCA, 62.53 miles, and the total number of "closed" routes, 34 miles.

Response: The number of miles of road closed to licensed motorized vehicles (49.1 in the proposed plan) refers to roads only. The larger mileage of unauthorized OHV does not include these roads but rather the refers to unauthorized routes and trails.

11(522)

Comment: Alternatives B, C, and D provide access into the NCA and wilderness through a trailhead and gravel parking lot located in Hidden Valley. It would be helpful to describe more specifics on the process law enforcement and rangers would use to patrol and issue permits for entering the wilderness and Sloan Canyon itself.

Response: The hiring and use of both Law Enforcement and Wilderness Rangers (non-law enforcement) is an administrative action not requiring a decision through this WMP. Wilderness Rangers are the first line contact with wilderness and backcountry users; and are responsible for monitoring for a variety of potential unauthorized incursions into the Wilderness. All regulations would be enforced by BLM Law Enforcement Agents and Law Enforcement Rangers. Violators would be detected through periodic patrol and investigative follow-up to reports by the public, BLM and other agency employees.

11(537)

Comment: On pages 2-20 and 3-50, the draft RMP/EIS refers to and agrees with managing bighorn sheep in 'L,;accordance with the Bureau's Rangewide Plan for Managing Habitat of Desert Bighorn Sheep on Public Lands (I 986). Pages 18 and 19 of the Rangewide Plan contain 15 management practices and standards that need application in the NCA. The first standard establishes that "Crucial areas, such as lambing grounds, migration routes, mineral licks, and areas within 1 mile of permanent water sources, would receive maximum habitat protection." The ninth standard states, "Excessive use by recreationists will be regulated on major desert bighorn use areas." Perhaps our greatest concern for the future of wildlife, particularly species intolerant of human activities otherwise considered benign, is the development of trails in the NCA. Currently, public use on the northern portion of the NCA is limited to cross-county hiking up washes and ridges in an east-west direction. North-south movement within the center of this area has been very limited. The development of trails stands to vastly increase the nature and volume of public uses into the NCA's core. Department biologists identified that the proposed V4-miletrail buffer around the North McCullough #1 (aka Poppy) Wildlife Water Development is not ideal, but due to this water's proximity to Sloan Canyon, this is a reasonable compromise. Close attention to monitoring will be needed. The draft RMP/EIS should address the possibility of increasing buffer size if public use increases to a level resulting in displacement of wildlife relying on the water development.Buffer protection should also be expanded around the North McCullough #4 Wildlife Water Development (aka Penny) on the northeast side of the range inside of the NCA. While we believe that "wildcat" trails will be dealt with properly in the NCA, we also hold that trail users will continually push the envelope in unauthorized trail extensions, regardless of the enforcement effort. Having public use trails in close proximity to any wildlife water development is inviting problems for wildlife. For example, wildlife trails become more prominent around watering areas; hikers and mountain bikers in the Las Vegas area have already been noted for usurping these trails for their own purposes to the detriment of

wildlife. In consideration of trails, the draft RMP/EIS cited that Papouchis et at (2001) showed mountain biking to be less disturbing than hiking to desert bighorn sheep at Canyonlands National Park. Interestingly in the River Mountains, adjacent to the McCullough Mountains, initial data from the USGS study presently underway and longer-term observations by the Department, show areas previously well-used by bighorn are now largely being avoided with the advent of hiking and biking trails. While the River Mountain bighorn have been feted for their unusual habituation to human development (Hemenway Wash & Park,Boulder City), the increase in trails and human use into other portions of bighorn habitat has had a noticeable, concerning behavioral effect on the herd. Trail users throughout the Las Vegas Valley have demonstrated continual disregard for regulations and land use plans by constructing unauthorized trails on Bureau lands. In the Red Rock Canyon NCA, the Bureau has been somewhat culpable by post facto authorization of these trails (Cottonwood Valley, Twilight Zone) that were constructed without appropriate thought and planning. Other unauthorized trails such as those in the North McCullough, South McCullough WSA, and River Mountains Bighorn Sheep ACEC have been condoned by a lack of regulatory enforcement. Therefore, the Semi-Primitive Area on the east side of the NCA, as shown in Figure 2.17, should be extended north one to two miles. The area for mountain bike trails shown on Figure 2.20 should be terminated west of "Rattlesnake Road" to protect the bighorn sheep summer use area around the North McCullough #4 Wildlife Water Development and use of the upper bajada area by gila monster and phainopepla. As the Department has previously asserted in planning discussions, mils must not be allowed along the crest of the North McCullough Range and in the vicinity of the North McCullough #3 (aka Roy) Wildlife Water Development which is located on Boulder City land immediately adjacent to the NCA.

Response: Additional trails would be planned, designed, and constructed through a systematic process that would evaluate needs, potential uses, suitable destinations, and public interest, through an environmental assessment. Trails would not be constructed within ¼ mile of wildlife water developments and trail development in sensitive natural or cultural areas would be avoided if possible. Any unauthorized constructed and social trail would be evaluated and considered whether to close and restore or adopt into the trail system. Any unauthorized surface disturbance would be treated as a trespass and subject to appropriate administrative or law enforcement action.

11(538)

Comment: We also would discourage competitive biking events within the NCA. This activity would be incompatible with the National Conservation Area purpose.

Response: Special Recreation Permits for competitive events could be issued outside the Wilderness at the discretion of the BLM Authorizing Officer.

11(540)

Comment: Page 4-8, To Recreation from Wildlife Management: It is a misnomer to suggest that recreation restrictions due to wildlife management actions will result in increased wildlife populations. It is also unclear how increased wildlife viewing opportunities impact recreation as wildlife viewing itself is recreation. The hard truth is that NCA use by most wildlife species is likely at capacity. Some of the recreational developments may have minor or negligible negative effects on certain wildlife, but most human recreation activities will disturb or displace wildlife and that poses physiological stresses that are not readily apparent, but critical to long-term health of wildlife populations.

Response: The document has been modified to strike reference to improved wildlife populations.

11(544)

Comment: Hunting is a valid recreational pursuit in the NCA, yet was not mentioned as such. Small game (dove, quail, and rabbit) hunting formerly prevailed on adjacent undeveloped Henderson lands that have since experienced urban conversion. Some upland hunting opportunity still occurs on the NCA. Presently,

most hunting activity relates to the desert bighorn sheep season that occurs in the fall. Some concern was voiced at the NCA Draft Plan public meeting in Henderson about hunting in the NCA. Considering the low number of bighorn sheep permits, the low-impact and specialized nature in hunting this species, and current state and local regulations, the Department does not find that any further restrictions are needed.

Response: The proposed plan allows hunting activities, in conformance with State of Nevada laws and regulation (section 2.4.2). Please note that the Sloan Canyon NCA Act, section 605 (f) states that the designation of the NCA does not affect the jurisdiction of the State with respect to wildlife, including hunting, although the Secretary can establish periods and areas in which no hunting is allowed for public safety or administrative reasons.

11(548)

Comment: Stated previously in the draft RMP/EIS, only horses, mules, and burros were named as the only animals allowed for transporting people or their possessions in the NCA. We concur, the allowance of other animals such as llamas and goats pose a real disease risk to bighorn sheep.

Response: The proposed plan also contains this management guidance.

11(549)

Comment: Page 3-34, section 3.13.1 relevant to bighorn sheep hunting: The paragraph as stated is not accurate. True, the number of permits for Hunt Unit 263 (McCullough Mountains and Highland Range) has been low in the past, herd dynamics allowed permit numbers to increase to 6 for the 2004-05 season and 10 for the upcoming 2005-06 season. Throughout Nevada, bighorn sheep hunt quotas are examined annually for consistency with management objectives. The Nevada State Wildlife Commission authorizes these hunt quotas in consideration of recommendations from the Department and the respective County Wildlife Advisory Board.

Response: The text has been changed as requested.

11(571)

Comment: Clark County would like to see an OHV trail system established outside of the non-attainment area in the SE corner of the NCA. This system should be a loop and connected to the OHV areas nearby such as the Dry Lake along Hwy 93.

Response: During the public scoping process and discussions with cooperating agencies, numerous possible management actions were raised for BLM consideration. As part of the development of reasonable alternatives, the planning team rigorously explored and objectively evaluated all the suggested actions. In general, actions were eliminated if they did not comply with the purpose and intent of the Sloan Canyon NCA Act and other laws, regulations, and policy. Much of the northern and western portion of the NCA lies within the Clark County Air Quality Nonattainment area for particulate matter (PM10). Additional OHV trail systems and "play" areas were not considered because the purpose of Sloan Canyon NCA, as directed by Congress in the Sloan Canyon NCA Act, Subsection 602, is "to conserve, protect, and enhance for the benefit and enjoyment of present and future generations the cultural, archaeological, natural, wilderness, scientific, geological, historical, biological, wildlife, educational, and scenic resources of the Conservation Area." Subsection 605(c) of the Act states that the Secretary of the Interior is to "allow only such uses of the Conservation Area that the Secretary determines would further the purpose described under subsection 602" (above). The proposed management plan seeks to provide recreational opportunities that are consistent with the directives provided by the Act.

12.0 REGULATORY AND POLICY ISSUES

12(SCR11)

Summary Comment: Some commenters felt that BLM should not collect recreational use fees and that if fees were collected they should be reasonably priced. Some commenters indicated that the plan was not clear about a user fee system and that fees that may be collected at the NCA should only be used for the NCA.

Summary Response: Use fees could be charged in specific areas of the NCA. Specific fee guidelines and amounts would be determined at a later time, consistent with nearby State and federal facilities. In addition, under Title VIII of The Federal Lands Recreation Enhancement Act, BLM is authorized to collect Standard Amenity Recreation fees and to retain all or part of the fees at the site where they were collected. BLM can collect fees for access to specific areas such as visitor centers and for areas that may include amenities such as parking, toilets, trash collection, picnic tables, signs, and security. The fees are usually used for projects to improve visitor services, protect cultural and natural resources, address health and safety issues, provide maintenance, and to cover the cost of trash collection.

12(78)

Comment: This is a beautiful valley because there is no sprawling growth up the sides of the surrounding mountains. If that growth were to occur we would soon be a small Los Angeles, with sprawling development, pollution and crime. I fear prohibiting the people access to this area would cause the land to be classified as unused, which could support a developer argument to release the lands for auction and then development.

Response: The Sloan Canyon NCA was designated by Congress to preserve, protect, and enhance the area's cultural features and natural resources and wilderness values for the benefit and enjoyment of present and future generations. The lands within the NCA boundary can not be auctioned for development.

12(81)

Comment: This is a beautiful valley because there is no sprawling growth up the sides of the surrounding mountains. If that growth were to occur we would soon be a small Los Angeles, with sprawling development, pollution and crime. I fear prohibiting the people access to this area would cause the land to be classified as unused, which could support a developer argument to release the lands for auction and then development.

Response: The Sloan Canyon NCA was designated by Congress to preserve, protect, and enhance the area's cultural features and natural resources and wilderness values for the benefit and enjoyment of present and future generations. The lands within the NCA boundary can not be auctioned for development.

12(227)

Comment: What are the projected O&M costs for the different alternatives that are being brought up? You had 66 million dollars. How long do you expect that to go or how far do you expect it to go if you start building buildings or putting roads in that need to be maintained, and where's the funding going to come for that?

Response: The Sloan Canyon NCA Act and the Clark County Act, Title II ("Wilderness Areas"), set a number of ground rules for the development of a management plan for the NCA and Wilderness. One of the rules pertains to NCA funding sources. The selling of nearby public land would fund the conservation and management of the NCA, including the construction of facilities and research of archeological and geological resources.

12(569)

Comment: One thing I did in researching this, and I don't know how I missed that it's been going on for two years, I don't know if BLM didn't have very good marketing about this or informed residents, but this has kind of been brought on me in the last couple of months.

Response: Chapter 5 of the proposed plan describes the planning process and the multiple opportunities for public involvement. Included in this chapter is a discussion of the methods that were used to disseminate planning information to the public.

13.0 TRANSPORTATION

13(SCR43)

Summary Comment: Commenters noted that it will be difficult to ban vehicles from the NCA and that the EIS should recognize that simply posting passive prohibitive BLM signage is totally inadequate. It was suggested that immediate physical blockage to motorized vehicles is essential to eliminate the unhealthy aspects of dumped trash, construction and landscaping materials. The RMP/EIS should clearly identify which roads/trails entering the NCA that the BLM will permanently close to include "how" and "when".

Summary Response: As noted in section 2.4.10 of the PRMP, the North McCullough Road, Dutchman Pass Road, Quo Vadis Mine Road, and Rattlesnake Canyon Road would be open to the public for registered vehicles as shown in Figure 2.12, Sloan Canyon Roads—Registered Motorized Vehicles Map. All other roads and routes would be closed to the public for registered vehicle use. All roads and routes not designated for public use could be physically barricaded, signed, or restored to natural conditions, as appropriate. Road and route closure activities have already been implemented under NCA interim management and these closure effort would continue.

13(41)

Comment: Access by vehicle to possible "trail heads" should not be forbidden; but should be guided by an acceptable choice of approved approaches to such "trail heads".

Response: Section 2.3.8 of the proposed plan describes the proposed facilities as well as the open roads within the NCA.

13(45)

Comment: The BLM Draft Resource Management Plan cause us serious concern [because] hiking on the east side of the McCullough range would be permitted, but driving on any dirt roads (including power line roads) in the NCA to access the east side would be prohibited.

Response: The Sloan Canyon Act requires BLM to designate roads and trails for the use of motorized vehicles, (section 605, (d)). After considering public comments from scoping and on the Draft RMP/EIS, discussions with cooperating agencies, and in consideration of the purpose of the NCA, the roads described in section 2.4.10 of the proposed plan are designated open for registered motorized vehicle use. Several roads located on the east side of the NCA are designated open. In addition, the utility road that parallels the eastern boundary of the NCA provides access from the east.

13(49)

Comment: The BLM Draft Resource Management Plan cause us serious concern [because] hiking on the east side of the McCullough range would be permitted, but driving on any dirt roads (including power line roads) in the NCA to access the east side would be prohibited.

Response: The Sloan Canyon Act requires BLM to designate roads and trails for the use of motorized vehicles, (section 605, (d)). After considering public comments from scoping and on the Draft RMP/EIS, discussions with cooperating agencies, and in consideration of the purpose of the NCA, the roads

described in section 2.3.10 of the proposed plan are designated open for registered motorized vehicle use. Several roads located on the east side of the NCA are designated open. In addition, the utility road that parallels the eastern boundary of the NCA provides access from the east.

13(232)

Comment: I think it's unfair to close the existing roads to disabled vets and current members of the Armed forces, as well as the American OHV public.

Response: The Sloan Canyon Act requires BLM to designate roads and trails for the use of motorized vehicles, (section 605, (d)). After considering public comments from scoping and on the Draft RMP/EIS, discussions with cooperating agencies, and in consideration of the purpose of the NCA, the roads described in section 2.4.10 of the proposed plan are designated open for registered motorized vehicle use. Several roads located on the east side of the NCA are designated open. In addition, the utility road that parallels the eastern boundary of the NCA provides access from the east.

13(233)

Comment: I think for the plan to have a road system to maybe get to the petroglyphs, something like Red Rock, something where it is feed, it is policed.

Response: The Sloan Canyon Petroglyph Site is located inside the North McCullough Wilderness, where motorized vehicles are prohibited.

13(281)

Comment: The desert's actually in better shape now than it was before. When you start – what this will wind up doing, this will close off all the roads to travel. And you have an inalienable right to travel. Governments are established to secure your inalienable rights, blessings of liberty. It's all in the constitution. He says they have to follow the law, just ignore the main law they're supposed to be following. People have an inalienable right to travel.

Response: The Sloan Canyon Act requires BLM to designate roads and trails for the use of motorized vehicles, (section 605, (d)). After considering public comments from scoping and on the Draft RMP/EIS, discussions with cooperating agencies, and in consideration of the purpose of the NCA, the roads described in section 2.4.10 of the proposed plan are designated open for registered motorized vehicle use. Several roads located on the east side of the NCA are designated open. In addition, the utility road that parallels the eastern boundary of the NCA provides access from the east.

13(283)

Comment: But they need to -- they need to leave the land, and the roads have to be left open. Any road already there has to be left open. You start closing off roads, you're not establishing or securing people's inalienable right to travel. That's my comment.

Response: The Sloan Canyon Act requires BLM to designate roads and trails for the use of motorized vehicles, (section 605, (d)). After considering public comments from scoping and on the Draft RMP/EIS, discussions with cooperating agencies, and in consideration of the purpose of the NCA, the roads described in section 2.4.10 of the proposed plan are designated open for registered motorized vehicle use. Several roads located on the east side of the NCA are designated open. In addition, the utility road that parallels the eastern boundary of the NCA provides access from the east.

13(285)

Comment: We're terribly concerned about the access issues that affect our community. As you go through the process of determining how you're going to access these particular Sloan Canyon areas, we want to particularly caution you on the fact that Eastern, the Sun City Anthem loop as we call it, are areas that, frankly, we can't stand any more cars in. We already are overcrowded in that area. We recommend you look at accessing that from the Sloan connector, which is off the I-15, down to Democracy and then, perhaps, through a separate road in there. That will provide a good experience for those people versus a bad experience traveling with a bunch of older folks.

Response: Sloan Canyon is a national conservation area must be accessible to all who chose to visit the area. BLM is working closely with the City of Henderson to identify access routes as residential development continues to expand towards the NCA boundary. The alignment of the North McCullough Road ROW, was proposed by the City of Henderson in its ROW application to BLM.

13(436)

Comment: I think it is advisable that an agreement be reached with wildlife people not to use motor access for maintenance of the guzzler located west of the Rattlesnake Road end, even though access for this purpose is authorized by the Sloan Canyon NCA Act. Similar motor access to the Sutor Hills guzzler has been declared unnecessary by wildlife people and I think the same philosophy should apply here. Roads or motor trails attract users of all kinds, a situation I think is not suited to good wildlife management. But even if motorized access is utilized infrequently for maintenance, such a trail needs to be obscure and not open to the public so that it remains most compatible with Semi-Primitive Zoning.

Response: Based on comments received on the Draft RMP/EIS, NDOW is also concerned about increased use near wildlife guzzlers. BLM and NDOW would work closely to monitor and minimize impacts from recreation use.

13(503)

Comment: BLM does not provide specific information about the impacts associated with designating Hidden Valley Road, Dutchman Pass Road, Quo Vadis Mine Road, and Rattlesnake Canyon Road.

Response: The impacts of these roads on the NCA's resources are discussed in Section 4.10 of the proposed plan.

13(541)

Comment: Rattlesnake Road on the northeast side of the NCA was less than half its current length for many years. It was extended by a mining interest in the early 1990's and abandoned without reclamation. The Department recommends that the road's western half be reclaimed to a width to accommodate mountain bikes. We also request that this not be designated as a trailhead in the future. Establishing a trailhead would likely entice trail extensions directed to the south. Again, any trails in the vicinity of "Rattlesnake Road" should avoid the hills to the northwest and west.

Response: In the proposed plan, the mountain biking and equestrian use areas near the Rattlesnake road have been modified as discussed with NDOW. This change should provide increased protection for the natural resources in this area.

14.0 VEGETATION

14(SCR34)

Summary Comment: Commenters requested that casual collection of vegetation in the NCA be prohibited and that collection only be allowed by permit.

Summary Response: The proposed management plan has been modified to prohibit casual and commercial collection of vegetation, such as seeds and live plants, in the Sloan Canyon NCA.

14(SCR35)

Summary Comment: Commenters noted the problem of noxious weeds in the NCA. Commenters suggested using native plant species in treatment of disturbed areas.

Summary Response: Noxious weeds are a concern throughout the western states and a noxious weed program is provided in the proposed plan. Section 2.4.11 contains vegetation management goals and actions and the goals of the Partners Against Weeds – an Action Plan for BLM are specifically mentioned. Additional management direction is given in Appendix C, the Wilderness Plan, for rehabilitating disturbances within the Wilderness.

14(557)

Comment: Appendix H - Biological Management Strategy. As presented, the Department believes the scientific and applied management merits of the Biological Management Strategy need to be expanded. Proposed investigations should clearly state goals, objectives, and methodologies supportive of how findings will identify: baseline conditions in timely fashion, impacts to the baseline conditions, cause and effect relationships, and remedial or proactive measures to be implemented if needed. The consequences to biological and wildlife populations by urban interface are largely predictable and hinted at in this appendix and elsewhere in the draft RMP/EIS. We agree that wildlife educational opportunities for the public are important and integral to the NCA's wildlife program, but that does not solve all conservation challenges affronting the NCA. Study descriptions identifying efforts to fill gaps about basic life history and habitat associations of certain special status species are lacking. The Biological Management Strategy does not provide a framework for acquiring and managing information necessary to evaluate effectiveness of protections envisioned with NCA establishment and administration. Nor does it suggest monitoring strategies identifying thresholds that trigger timely changes in existing NCA management practices, expediting implementation of adaptive contingencies, or measuring the efficacy of such actions. With assistance by other federal, state and interested entities, we look forward to development of a much improved product.

Response: The Biological Management Strategy is meant to be a high-level, initial strategy for managing the biological resources within the NCA. More detailed management strategies will be developed in the future based on visitation and monitoring.

15.0 WILDERNESS

15(SCR36)

Summary Comment: Commenters indicated that solitude and wilderness soundscapes would be affected and impacted by aircraft overflights.

Summary Response: BLM does not have administrative jurisdiction of the airspace above the Sloan Canyon NCA and the Wilderness. The use of aircraft is only regulated by BLM if the aircraft lands or if anything/anyone is picked up for dropped off by means of an aircraft. Aircraft flights over the NCA are infrequent and are usually at high elevations. The Clark County Act specifically allows military overflights of the Wilderness. Flight testing and evaluation; designation or creation of new units of special use airspace; or establishment of training routes are not precluded. The highest percentage of low-level overflights of the Wilderness is from scenic tours originating from local area airports, although private flights from Henderson Executive Airport, located several miles from the northern Wilderness boundary, also contribute. In addition, commercial flights from McCarran International Airport pass directly over the Wilderness, although they tend to be localized to the western edge and at an altitude of more than 4,000 feet. Legislation currently before Congress, proposes a future heliport located west of the NCA and

mandates a two mile wide helicopter flight corridor over the Wilderness. The legislation would allow helicopter flights over the Wilderness at elevations between 500 and 1,000 feet above ground. As proposed, approximately 90 round-trip overflights a day, equating to a flight about every four minutes could emanate from the heliport. These overflights may impact wilderness values and visitor experiences in portions of the North McCullough Wilderness, but are outside the scope of BLM's planning or authority. Overflights conducted by BLM within the NCA or the Wilderness would be designed to minimize impacts to NCA or the Wilderness characteristics. These overflights would be primarily for NCA or wilderness monitoring purposes, (e.g. checking for new disturbances, A vehicle use); however, helicopters could be used to deliver personnel or materials for the purposes of the NCA in conformance with the Sloan Canyon Act, Wilderness Act, and North McCullough Wilderness Management Plan (Appendix C).

15(63)

Comment: I live approx. 1/2 block from an entry into Sloan Canyon. I have a Yamaha "Rhino" 2 seated vehicle I drive into the canyon and pick up debris others leave behind. I am disabled and cannot walk through the area in its entirety. Is a permit available for me?

Response: Section 4.10 of the proposed plan presents the roads that would be open for registered vehicle use.

15(558)

Comment: Appendix I - Draft Wilderness Management Plan. Of the wilderness designated in the Act of 2002, only the Wee Thump Wilderness Area lacks significant habitat value for bighorn sheep. All of the North McCullough Mountains Wilderness Area is habitat for desert bighorn sheep. The North McCullough Wilderness Area was not recommended for wilderness by the Bureau. The area has significant shortcomings because of its size and proximity to urban intrusions. This should dictate a conservative approach to the development of trails, facilities, and related appurtenances. The Department is very concerned about trails in the NCA, but particularly in the wilderness. Constructing trails would increase human use into remote areas, impacting use of those tracts by wildlife. The location of the trails is also critical. Ridgeline or crestline trails would make visitors more visible to wildlife, influencing their use of the area. To protect the interests of wildlife it would be necessary for the Department to be involved in the trails planning process. On page 1-8, a passage states that No motorized access to the wildlife water (Project #4916) would be permitted. This language is prematurely presented and is not consistent with our Wilderness MOU, the Act of 2002, or the Wilderness Act. While inspections and light repairs can be carried out on the ground, we believe major repairs will require at the least, helicopter access. A minimum tool evaluation is appropriate, and allowance of motorized access may be acceptable. We do recommend that wilderness use remain primitive until appropriate baseline monitoring has been accomplished.

Response: The North McCullough Wilderness Plan has been finalized in Appendix C and addresses the commenter's concerns.

16.0 WILDLIFE

16(SCR37)

Summary Comment: Commenters requested that bighorn sheep lambing seasons and areas in the NCA be identified to help to avoid human intrusions.

Summary Response: The Nevada Department of Wildlife is a cooperating agency for the proposed plan and provided expertise to ensure that sufficient safeguards were incorporated in the proposed plan. These safeguards included ways to identify sensitive areas on a dynamic basis as they might change over time and ways to respond with appropriate measures to reduce potential impacts.

16(SCR38)

Summary Comment: Commenters requested that reptile collections be prohibited in the NCA, because collection negatively affect species.

Summary Response: The proposed management plan has been modified to prohibit casual and commercial collection of reptiles in the Sloan Canyon NCA.

16(111)

Comment: While field mice are to be expected adjacent to open desert areas, rats should not be tolerated. I've killed two in the last year which I suspect have been attracted by the "nesting" materials which have been dumped in the Flood-Control Catchment basin.

Response: The proposed plan includes removal of existing litter within the NCA. This should result in reducing the attractiveness of the area to rats or other non-native wildlife species.

16(132)

Comment: Several traditional areas of terrain within the NCA and north McCullough wilderness boundaries are utilized by the ewes for lambing. These areas are limited in numbers and are particularly critical for the success of lamb production and survival. The ewes will seldon lamb in these areas being disturbed by human activities. Physical characteristics for lambing areas are: 1. Water sources such as springs, potholes, guzzlers-ample for the needs of the ewes 2. And adequate food supply with seasonal green grasses and forbs which provides a higher food value and enriched milk supply 3. Rough, high, broken ground with ample escape cover 4. Terrain offering protection from inclement weather and possible predators. Resolve***Wildlife biologist of BLM and NDOW "identify" those areas of the NCA being used by the desert bighorn ewes during the lambing period of late winter and early spring. Further more - restrict intrusion into these identified areas by visitors or land users for the duration of this lambing period.

Response: The preferred alternative (Alternative C) would limit the designation and construction of trails, facilities, and ROWs within known bighorn sheep lambing areas. Surface disturbing activities would be limited within known bighorn sheep lambing areas from January through May.

16(133)

Comment: Desert bighorn are considered as a non-migratory when established in preset day ranges. However there is periodic movement of the bighorn within their home mountain ranges. Seasonal rains of early spring and the Southwest's monsoons of July and August provide moisture for plant growth responses that are critical to maintaining a healthy-sustaining population of desert bighorn. These induced are generally limited in size to one or two hillsides or valley floors along a range. Although desert bighorn are opportunistic and adaptable feeders-these seasonal green-ups produce grasses, wildflowers, and new growth of browes that are preferences. Seasonal habitat improvements that provides an opportunity for the desert bighorn to thrive in an otherwise dry and harsh environmental landscape. Resolve *** Establish criteria within NCA regulations-with advisement from wildlife biologist of the BLM and NDOW - regulate or restrict access to seasonal green-up areas if visitor intrusion inhibits the beneficial usage for the welfare of wildlife**Administering of the said regulations would assure the NCA and the public of the future of our wildlife legacy.

Response: Desert bighorn sheep habitat and populations within the NCA are managed in cooperation with the current NDOW Memorandum of Understanding. This includes educating visitors to be sensitive to bighorn sheep lambing areas and limit designation and construction of trails, facilities and ROWs in known lambing areas.

16(134)

Comment: Within the boundaries of the North McCullough Wilderness area there are several locations where Nevada's desert bighorn sheep exist. Although the sheep are not limited by any given range-their existence is predicated by seasonal rain water and growth responses "and" a sustained free water source. The Fraternity-working with the BLM and NDOW have established two water development projects, called guzzlers, within th NCA/MWA and one close to the NCA's southeast border. Resolve**Establish that no trailheads will end at the said project water sources and trail routes in close proximity to guzzlers shall be "out of visual sighting"** Intrusion of the public to these critical water projects would lead to a diminishing desert bighorn sheep population and will lessen the ability of those visiting the NCA to view these magnificent animals in their natural habitat.

Response: Desert bighorn sheep habitat and populations within the NCA are managed in cooperation with the current NDOW Memorandum of Understanding. This includes educating visitors to be sensitive to bighorn sheep lambing areas and limit designation and construction of trails, facilities and ROWs in known lambing areas.

16(238)

Comment: For those of you who are hikers, I want you to see the top of the mountain. There's no way I don't want you see a desert bighorn sheep. But if we don't approach this realistically, that may be a place where you can hike, bike, ride your off-road vehicles, but it will not be a place for wildlife. And I don't want to see that happen. I know you don't either.

Response: Thank you for your comment.

16(242)

Comment: I notice that in terms of some of the restrictions for having to do with raptor nesting, it talks about an April/May time frame for restricting the public into various raptor nesting areas. Things like great horned owls are also raptors. They start nesting in January, very early. So your window of care or concern for raptors probably needs to be expanded. The raptor management action has been changed to be sensitive to raptors during nesting season, rather that stating a few specific months.

Response: As additional information about sensitive resources, including all raptor species is collected from monitoring efforts, adaptive management would be used to protect and preserve these resources for future generations.

16(243)

Comment: The mere presence of people can have an impact on them [big horn sheep] and basically cause them to move away. So I would be very cautious in terms of the plan, and you can always loosen restrictions. It's very difficult to tighten them oftentimes, because constituencies are built up for whatever it is.

Response: The preferred alternative (Alternative C) would limit the designation and construction of trails, facilities, and ROWs within known bighorn sheep lambing areas. Surface disturbing activities would be limited within known bighorn sheep lambing areas from January through May.

16(251)

Comment: We live in this country just like they [bighorn sheep] do. And maybe we don't walk everywhere like they do, but we still have the right to be out there like they do.

Response: Thank you for your comment.

16(269)

Comment: They talk about how well the bighorn sheep is doing. Well, maybe it's the interaction of the people and nature unrestricted that help make it that way.

Response: Thank you for your comment.

16(274)

Comment: Bighorn sheep, the animals, those are protected by the people in Henderson and by the people that enjoy everything that's available out there. And to restrict those things and just prohibit various things is ridiculous. You should be able to incorporate it.

Response: Thank you for your comment.

16(406)

Comment: In Table 3.6 the bird section lists several special status species which at best would be considered accidental if found in the NCA since there is no suitable habitat where one would expect to find these birds. The implication that specific management actions relating to Northern Goshawk (a forest hawk), Pinyon Jays, Juniper Titmouse, or Arizona Bell's Vireo will be occurring is misleading. These birds should be dropped from the list. Also on page 3-40 Townsend's big eared bat is listed in the bird section. If it is going to be included it should be listed along with other mammals.

Response: The list of special status species for the NCA used species data that is aggregated at the county level. This data source includes species whose habitat is not present within the NCA. Townsend's big eared bat is included with the other mammals listed in Table 3.6.

16(545)

Comment: Page 2-79, Section 2.8.12: The second to the last paragraph reads as if the Bureau will issue permits for collection of wildlife specimens for scientific purposes, and NDOW only needs to authorize collection of listed species. As stated, this is not an accurate reflection of regulatory authorities by the affected agencies, including the U.S. Fish & Wildlife Service. The Department will be happy to assist in clarifying this and other similarly reading sections.

Response: Permits for collection of wildlife specimen within the NCA would be issued for scientific purposes on a case-by-case basis only. Casual and commercial collection of unlisted wildlife species would not be allowed within the NCA and collection of any listed species would require additional permits from NDOW and US Fish and Wildlife Service.

16(547)

Comment: In section 3.13 on page 3-34 and in the Impacts section (4.12), the draft RMP/EIS mistakenly states that there are no known amphibians in the NCA, while they are mentioned in Appendix H on page H-2. Redspotted toads (*Bufo punctatus*) are known to occur in the drainage below the Penny Water Development. In August of 1988, toads were found using the temporary pools in that area immediately following a thundershower. Following construction of the Penny water development, the toads have regularly used the water development's drinker. The toads existed prior to water development installation and it is suspected that the species' presence can be found in similar volcanic tuff drainages to the north and south on the east face.

Response: The past presence of red spotted toads (*Bufo punctatus*) near the Penny water development after thunderstorms has been included in Section 3.13 and in Appendix H.

16(550)

Comment: Page 3-35, top paragraph, Reptile Collecting: Credit for the information in this paragraph should be to the action agency, i.e. NDOW 2002; not to Nevada Department of Conservation and Natural Resources (NNDRC 2002).Further, the type of citation is unclear as there is no reference listed in the back of Chapter 3 or elsewhere in the draft RMP/EIS. The Department is unclear what the cited NDOW reference is; hence we are uncertain as to the accuracy and context of the statement made in the second sentence. The 1998 Record of Decision for the Bureau's Approved Las Vegas Resource Management Plan and Final Environmental Impact Statement at the bottom of page 5 states, Management Directions SS-3-a-n would change as follows: Do not allow commercial collection of flora. Only allow commercial collection of wildlife upon completion of either a credible study or investigation that demonstrates that commercial collection does not adversely impact affected species or their habitat, as determined by NDOW This action will not affect hunting, trapping, or casual collection as permitted by the State. The Department hopes the Bureau will keep this in mind in consideration of enhanced access considerations associated with other potential NCA uses.

Response: The Nevada Natural Resources Status Report by the Nevada Department of Conservation and Natural Resources has been included in the text as the correct reference regarding collection of reptiles. The Nevada Natural Resources Status Report was prepared by the Department of Conservation and Natural Resources as part of the agency's ongoing process to develop a Natural Resources Plan. Casual and commercial collection of reptiles and vegetation would be prohibited throughout the NCA.

16(551)

Comment: Page 3-35, section 3.13.2, Potential Wildlife Species. The species listed are examples of known or potential species and does not constitute an accurate, comprehensive list. In effect, this section should make this statement and refer to an appendix, if warranted, and provide the comprehensive list and other relevant information there. The Department will be happy to assist in enhanced species list development. For example, Mammals and Table 3.6. The Mexican free-tailed bat is also now State Protected. Other bat species which may occur in the NCA are the pallid bat (Antrozous pallidus) (State Protected) and the State Sensitive Townsend's big-eared bat (Plecotus townsendii). The listing name of long-haired myotis should be long-eared myotis.The grey fox (Urocyon cinereoargenteus) is not listed here, but is in Appendix H. This species rivals or is probably more common than the kit fox in the NCA. The mule deer (Odocoileus hemionus hemionus) occurs in the South McCullough Mountains, but has not been documented north of McCullough Pass. Palmer's chipmunk (Tamias palmeri) is not expected to occur in the low desert, treeless setting of the NCA. Table 3.6, neither the desert valley kangaroo mouse (Microdipodops megacephalus albiventer) nor the pygmy rabbit (Brachylagus idahoensis) are known to occur in the NCA. The Loggerhead Shrike (Lanius ludovicianus) is now a State Protected, Sensitive bird. Page 3-36, Reptiles, corrections of scientific names: Great Basin Collared Lizard (Crotaphytus bicinctores), Speckled Rattlesnake (Crotalus mitchellii); compare with Table 3.6 and Appendix H.

Response: The list of Potential Wildlife Species in Section 3.13.2 is a preliminary list of those species that may be found within the NCA. This list includes species that may occur in areas near the NCA or past survey data indicated their presence within the NCA. A comprehensive list of species for the NCA will need to be developed in cooperation with NDOW. The status species and species scientific names have been updated to reflect the updated information available from the Nevada Natural Heritage database.

16(552)

Comment: Pages 3-38 to 3-54 inclusive of section Table 3.6 Fauna Special Status Species Potentially Occurring LiB the Sloan Canyon NCA, and section 3.13.4 Bighorn Potential Habitat Model, we use the desert bighorn sheep as an example: Habitat characteristics reflected in Table 3.6 should include, "lower elevation areas with moderate slopes and ruggedness" that bighorn sheep rely on during fall, winter and spring months. The bighorn sheep habitat model developed in conjunction with the USGS is a useful tool. As with all predictive habitat models, results generated stem from assumptions and chosen parameters.

Inherently, habitat models have weaknesses as they incorporate few principal components of complex systems. Habitat models provide starting points or baselines that must be supported or refuted by empirical data and/or GPS positional data. Section 3.13.4 should provide information that explains the utility and limitations of the habitat models. Moreover, the designation "Crucial" (=Summer) Habitat should be omitted from Figure 3.16. Potential Bighorn Sheep Habitat is misleading not merely because the model has not been validated, but more importantly, portrayal of summer habitat as crucial strongly suggests winter habitat has inferior value; this is not at all the case. All bighorn habitat, regardless of season or description used, is crucial or critical to the species. In the McCullough Range, the Department conducts aerial bighorn sheep surveys in the early fall at a time when reliance on freestanding water remains high. Thus, bighorn distribution in the early fall often closely reflects summer bighorn distribution. Bighorn group locations noted on aerial surveys indicate a much broader distribution in summer than suggested by the bighorn sheep habitat model.

Response: Bighorn sheep habitat is defined as summer range and winter range. Habitat models are based on information that varys in generality and precision, due in part to the amount of available quantitative habitat information and the frequent qualitative nature of existing information. Not all areas where desert bighorn sheep may occur are included in the model, however the model includes areas where they are most likely to occur.

16(554)

Comment: Appendix C - Draft Recreation Monitoring Plan: Monitoring the effects of recreation use on wildlife is addressed as a somewhat nebulous goal. The Department would like to see some form of intensive monitoring similar to the active work by the USGS in the River Mountains. This should be initiated as soon as possible to establish a baseline. Constructing trails and other developments should be limited until a basic understanding of area resources is better understood.

Response: Monitoring resources within the NCA are in included as part of the Proposed RMP. This include monitoring for sensitive wildlife resources as well as cultural resources.

16(555)

Comment: Cumulative Impacts, Section 4.16. This section provides a good start as a qualitative description of where the Sloan Canyon NCA fits in to the cumulative effects occurring in Clark County. However, the cumulative effects upon the NCA are not well listed or quantified. For example, landscape-level species associated with the NCA and the McCullough Wilderness, e.g. bighorn sheep, are affected by several actions occurring adjacent to and away from the NCA. The Ivanpah Energy Center, Copper Mountain Energy project, Sempra gas line, Navajo gas line, Boulder City / US-93 Corridor Project, Hoover Dam Bypass Project, Table Mountain and other wind energy projects, SNWA's Intake and Surface Water Diversion projects, Ash Grove Cement, Coyote Springs Investments, Spring Mountains Perimeter Trail, and River Mountains Trail all have bearing on the health and persistence of Nevada's desert bighorn population. Each of these has direct, indirect and cumulative effects inherent to them. Yet, the cumulative impacts for these projects have not been entered into the discussion formula for the Sloan Canyon NCA. Nor have measures to minimize or mitigate been adequately addressed. An example of this is in the Wildlife section on pages 4-135 and -136. The impacts discussed are mainly direct and indirect impacts within the NCA, not cumulative. Substantive treatment of cumulative effects and mitigation for impacts has yet to be adequately developed. Hopefully, the statements in section 4.18 are not harbingers to the final RMP/EIS.

Response: The cumulative impacts to the NCA and wildlife have been revised.

16(572)

Comment: Clark County requests that the BLM include any invertebrate species of concern potentially such as the Nevada admiral (*Limenitis weidemeyerii nevadae*).

Response: Invertebrates have not been listed in the PRMP, however, BLM is mandated to protect and manage Threatened, Endangered, Candidate, Proposed, and BLM Sensitive wildlife species and their habitat. BLM is also required to protect and manage Sensitive species jointly identified with the appropriate State agency. Table 3.6, Fauna Special Status Species Potentially Occurring in Sloan Canyon NCA, presents the lists of species that could occur within the NCA that are either federally protected, BLM Sensitive species, part of the NNHP, or included in the Clark County MSHCP (CCDCP 2000). The species listed in Table 3.6 are based on county-level information and existing survey data, and do not contain all species that could be in the NCA. Ongoing and future wildlife studies would refine the list of species occurring within the NCA, which would be updated to include invertebrates.

17.0 Outside of Scope

17(131)

Comment: The Nevada Outdoor Recreation Association believes the draft EIS to be fundamentally flawed because two emerging proposed actions (the construction of the scenic road and two nearby airports) have not been adequately considered in this EIS. The transportation projects will affect sound levels in the NCA and affect the visitor experience. Wildlife present in the area can also be impacted. We ask that the impacts from these proposed projects be more fully evaluated and that mitigation measures be considered.

Response: The City of Henderson holds ROWs for two roads and two trails. The ROW for the existing road is for access to a flood control facility, and two new trail ROWs were granted as part of the Sloan Canyon NCA Act. The Sloan Canyon NCA Act directed BLM to grant the City of Henderson a ROW for the Anthem Trail (N-76312) and the North McCullough Road and Trail (BLM Case File No. N-65874). In September 2002, the City of Henderson submitted an application to construct a trail and scenic roadway through the area now designated as the Sloan Canyon NCA (ROW N-65874). The Sloan Canyon NCA Act required BLM to grant the ROW to the City of Henderson within 180 days of NCA designation and to make a recommendation for the road, unofficially named the North McCullough Road, in the NCA management plan. In May 2003, BLM partially issued the ROW, recognizing that the recommendation for the road location would be developed as part of this RMP process. Once the recommendation is finalized through the ROD, the City of Henderson would Identify a specific alignment and amend ROW application N¬-65874 to include road design details and visitor facilities, such as parking areas. Additional environmental reviews would be required for this detailed planning. The BLM does not have jurisdiction over the airspace above the North McCullough Wilderness. The use of aircraft is only regulated by the BLM if they land or; if anything or anyone is picked up or dropped by means of an aircraft. Aircraft overflights of the area are currently infrequent and usually at high elevations. However, two new airport development proposals exist that could greatly degrade solitude of the area: 1) a heliport near the northwest corner of the Wilderness would cause sight-seeing helicopter overflights every few minutes; 2) the construction of a cargo/passenger airport between Primm and Jean, Nevada, could cause additional, lower level commercial overflights, depending on takeoff and landing flight paths.

17(302)

Comment: I found that there was a survey done by BLM. What I think they did is 1,500 people randomly chosen from DMV records were sent a questionnaire. The questionnaire didn't ask if you wanted this type of area or if you wanted this type of use to be available in this conservation area. The questionnaire asked how many times have you done this activity in the last year? And it included walking, hiking, biking, motorcycling, quad use, all these things, camping, all this stuff. The questionnaire asked how many times, and it gave multiple choice answers, 1 to 10, 10 to 20, so on like that. Percentage wise over the State of Nevada, 1,500 people, there were something like 20 percent or 18 percent were people between the ages of 65 and 75 years old. Now, I'm not saying that there's anything wrong with that. I think that's great.

What I'm saying is that those same people if they had been asked should we prohibit motorcycle use, well, I have a grandfather who rode motorcycles for 20 years in California before they closed down 90 percent of the areas in California. So I think that it was very, again, short-sighted to ask the survey in that manner. I think there would be a lot more people that would have responded positively. Just because a 65-year-old man hasn't been bike riding 20 times in the last year doesn't mean he things a 25-year-old or a 30-year-old shouldn't be allowed to.

Response: This questionnaire is outside the scope of the Sloan Canyon NCA Resource Management Plan. Please contact the BLM Las Vegas Field Office at 515-5000 for information on the questionnaire.

17(308)

Comment: Would it be possible to be on a notification list for NEPA projects affecting the Northeast Clark County area? Particularly Moapa and Virgin Valley's, Lake Mead area and the Gold Butte area. I am concerned of the lack of public participation with the loss of the website. I would also like a copy of the Las Vegas RMP FEIS of 1998, if possible.

Response: Please contact the BLM Las Vegas Field Office at 515-5000 for information on other BLM lands and to request copies of documents.

17(454)

Comment: From another viewpoint, the writers should read Range Magazine (particularly several articles in the Summer 2005 issue) and come into a better realization that over resting federal lands (particularly rangeland) strips away biodiversity. SNRTP's observation concerning activity that allows seeds to sprout and develop is right on!

Response: The Hidden Valley Allotment is the only allotment open to livestock grazing in the Sloan Canyon NCA. Most of the Hidden Valley Allotment is outside the NCA and therefore is not affected by this plan's decisions; however, a portion of the allotment extends north into the NCA and the North McCullough Wilderness (Figure 3.21). Grazing on the Hidden Valley Allotment is ephemeral, which means that authorization to graze is dependent on climatic conditions and grass production. The permittee may graze the allotment if the BLM Authorized Officer determines forage conditions are suitable for livestock grazing. Consequently, BLM is actively involved in the management of the Hidden Valley Allotment.

18.0 PETROGLYPH SITE MANAGEMENT

18(SCR39)

Summary Comment: Commenters stated their support for permits and guided tours of the Sloan Canyon Petroglyph Site.

Summary Response: Once residential development on the western side of the NCA is complete, the Sloan Canyon Petroglyph Site will be just a short distance from a large urban population. To manage the potential high number of visitors, to protect the sensitive cultural and natural resources, and to protect wilderness characteristics, detailed management actions were developed. These actions would be implemented once adequate NCA infrastructure is in place. Section 2.4.3 of the PRMP and Appendix C, the Wilderness Management Plan contains additional information on protections for the Petroglyph Management Area.

18(SCR40)

Summary Comment: The proposed management plan has been modified to prohibit casual and commercial collection of reptiles in the Sloan Canyon NCA.

Summary Response: The proposed plan designates foot trails within and in the vicinity of the Petroglyph Management Area which was designed to minimize impacts on cultural, wildlife, and wilderness values. The trail head at Hidden Valley also provides access to other parts of the NCA and wilderness where cross-country hiking is allowed. In the Wilderness, there would be three trail options: the traditional hike in Sloan Canyon wash (Petroglyph Trail) or a newly constructed trail which forks off the traditional wash hike and avoids the rockfall portion of the wash (Cowboy Trail), and from the south by the Hidden Valley Trail. Access to the Petroglyph Management Area from south end of the canyon would be by permit on low-use days via a designated 1.5-mile trail from the Hidden Valley Trailhead.

18(73)

Comment: With money available, we should make the access to the petroglyphs available for cars and families with a visitor center and protected from abuse.

Response: The preferred alternative proposes a visitor center at the north entrance to the Sloan Canyon Petroglyph site that would allow visitation to the site by guide or permit. However, the rock art sites are situated within the North McCullough Wilderness Area, which based on Wilderness management policy, does not allow motorized access. The permit system would be designed to limit the amount of people that could visit the site at any given time, which would serve to protect these sites from damage.

18(88)

Comment: Their proposal also limits access to the area of the petroglyphs which are perhaps three to four miles to the west. A new development will come fairly close to the petroglyphs and they have proposed restricting access to them only by guided tours and perhaps only approaching them from the south [off Las Vegas Blvs. halfway to Jean].

Response: The preferred alternative proposes a visitor center at the north entrance to the Sloan Canyon Petroglyph site that would allow visitation to the site by permit. The permit system would be designed to limit the amount of people that could visit the site at any given time, which would serve to protect these sites from damage.

19.0 NORTH MCCULLOUGH ROAD

19(SCR32)

Summary Comment: Commenters stated their support for the northern corridor of the North McCullough Road, because it would be less intrusive to the NCA.

Summary Response: Based on ground surveys, field visits, impact assessments, and extensive dialogue with City of Henderson planners and engineers, as well as cooperating agencies, BLM recommends the proposed Northern Corridor as the location for North McCullough Road.

19(SCR33)

Summary Comment: Commenters suggested that a bike lane be incorporated into the North McCullough Road.

Summary Response: The City of Henderson submitted an application to BLM in September 2002, to construct a trail and scenic roadway to provide rural roadway access to the NCA, trailheads, and parking pullouts/overlook points. In November 2002, the Sloan Canyon NCA Act directed BLM to grant the City of Henderson a ROW for the Anthem Trails (N-76312) and the North McCullough Road and Trail (N-65874). The City of Henderson application for the North McCullough Road and Trail could include multiple-uses for the trail. A bike lane within the road itself was not included in the ROW application and BLM believes this would have serious safety implications.

19(94)

Comment: I do not think that a proposed road from the Dutchman's Pass area across the ridge west to the petroglyph canyons is necessary. If the road were built, probably 95% of its use would be to get people from one part of Henderson to the other non-stop and would not add anything to the appreciation of the NCA.

Response: The Sloan Canyon NCA Act directed BLM to grant the City of Henderson a right-of-way (ROW) for the North McCullough Road (N-65874), which is envisioned as a scenic roadway constructed to provide access to the NCA, trailheads, and overlook points. The Act requires BLM to recommend a location for the North McCullough Road as part of this planning process. Based on ground surveys, field visits, impact assessments, and extensive dialogue with City of Henderson planners and engineers, as well as cooperating agencies, BLM recommends the proposed Northern Corridor as the location for North McCullough Road. Any future development related to this scenic roadway and associated trail would require additional environmental review.

19(117)

Comment: The discussions for both the North & South Corridor address the road as..."runs along a ridge with existing transmission poles for another 1.5 miles into the Anthem Community adjacent to the Del E. Webb Middle School". (a) Since I live in Anthem Estates (almost right under said transmission line) I am concerned. Further, every existing Henderson school produces a major traffic jam with parents double parked to pick up students at the end of the school day. Additionally, there is a mad influx of people returning home from work past the Middle School and into the Anthem Estates and Anthem Heights. Since this area is already fairly congested and will become even more so when the Del E. Webb Middle School opens. Unless this road is carefully designed, and the traffic patterns/flow rates are meticulously analyzed, I am concerned that this nexus will become a major problem. The minimal amount of back-yard privacy currently enjoyed by homeowners along the Anthem Estates portion of this [North and South Corridor] road, may very well be destroyed unless specific actions to protect the privacy and noise-free peace are implemented. This ROW location should again be reviewed for the impact it will have on any or all the Anthem community and its homeowners.

Response: The City of Henderson holds ROWs for two roads and two trails. The ROW for the existing road is for access to a flood control facility, and two new trail ROWs were granted as part of the Sloan Canyon NCA Act. The Sloan Canyon NCA Act directed BLM to grant the City of Henderson a ROW for the Anthem Trail (N-76312) and the North McCullough Road and Trail (BLM Case File No. N-65874). In September 2002, the City of Henderson submitted an application to construct a trail and scenic roadway through the area now designated as the Sloan Canyon NCA (ROW N-65874). The Sloan Canyon NCA Act required BLM to grant the ROW to the City of Henderson within 180 days of NCA designation and to make a recommendation for the road, unofficially named the North McCullough Road, in the NCA management plan. In May 2003, BLM partially issued the ROW, recognizing that the recommendation for the road location would be developed as part of this RMP process. Once the recommendation is finalized through the ROD, the City of Henderson would Identify a specific alignment and amend ROW application N¬65874 to include road design details and visitor facilities, such as parking areas. Additional environmental reviews would be required for this detailed planning.

19(129)

Comment: Concern is with the analysis of the impacts of the proposed "scenic" road through the NCA. Based upon experiences with the "scenic" road through the Red Rock NCA, it is not unreasonable to suggest that the road will be used as a short cut from Boulder City and Henderson to Anthem and I-15. The road through Red Rock is increasingly being used as a short cut from Pahrump and the southern part of the Las Vegas valley to the northern part of the valley. When it was originally constructed, the "scenic" road through Red Rock had low, posted speeds and low levels of traffic. Today, it is not uncommon to find a mix of traffic on the roads with some people speeding in excess of 60 miles an hour through Red

Rock. The Nevada Department of Transportation increased, with no public input, the posted speed along the highway because the road was designed for higher speeds and people were routinely exceeding the lower posted speed limit. We can only conclude that a similar story will be told, years from now, for the proposed "scenic" road through the Sloan Canyon NCA.

Response: The City of Henderson holds ROWs for two roads and two trails. The ROW for the existing road is for access to a flood control facility, and two new trail ROWs were granted as part of the Sloan Canyon NCA Act. The Sloan Canyon NCA Act directed BLM to grant the City of Henderson a right-of-way (ROW) for the North McCullough Road (N-65874), which is envisioned as a scenic roadway constructed to provide access to the NCA, trailheads, and overlook points. In September 2002, the City of Henderson submitted an application to construct a trail and scenic roadway through the area now designated as the Sloan Canyon NCA (ROW N-65874). The Sloan Canyon NCA Act required BLM to grant the ROW to the City of Henderson within 180 days of NCA designation and to make a recommendation for the road, unofficially named the North McCullough Road, in the NCA management plan. In May 2003, BLM partially issued the ROW, recognizing that the recommendation for the road location would be developed as part of this RMP process. Once the recommendation is finalized through the ROD, the City of Henderson would Identify a specific alignment and amend ROW application N¬-65874 to include road design details and visitor facilities, such as parking areas. Additional environmental reviews would be required for this detailed planning. Based on ground surveys, field visits, impact assessments, and extensive dialogue with City of Henderson planners and engineers, as well as cooperating agencies, BLM recommends the proposed Northern Corridor as the location for North McCullough Road. Any future development related to this scenic roadway-associated trail would require additional environmental review.

19(130)

Comment: We question the predicted vehicle counts on the road. How were they estimated? What build out of Anthem and the area east and south of the NCA was contemplated in estimating the traffic levels that would use the "scenic" road as a shortcut? What speed would be used in the design of the road versus the initial, posted speed limit? Who would own and maintain the road? What control would the BLM have, if any, on the road and people using the road?

Response: The Sloan Canyon NCA Act directed BLM to grant the City of Henderson a right-of-way (ROW) for the North McCullough Road and Trail (N-65874) and for the NCA management plan to include a recommendation for the location of the ROW. ROW application N-65874, submitted to the BLM Las Vegas Field Office, contained two potential corridors for the development of the North McCullough Road and Trail, a northern and southern option. The road is intended to be a paved rural road, constructed to provide access to the NCA, trailheads, and overlook points. The road is to be constructed with minimal disturbance to existing grades and vegetation, and the eastbound and westbound lanes would be separated by a natural median. The roadway would be designed for a speed limit of 35 miles per hour (mph) unless a different speed was warranted in certain areas. Related structures could include drainage improvements, bighorn sheep crossings, and parking for trailheads and overlook points. The overall length of the project would be approximately 7 miles. BLM, in conjunction with the City of Henderson, conducted a review of the potential northern and southern corridors, which consisted of field surveys and resource analyses. A potential road alignment was described for each corridor, and natural, cultural, and design parameters were used to compare the alignments or corridors, depending on the detail of available data. Based on the resource analysis contained in the Draft RMP/EIS, input from the public, and discussions with the cooperating agencies, BLM recommends the northern corridor as the location for the issuance of the ROW. The potential impacts of constructing a road along the northern corridor is described differently in this section than the impacts for all other resources in this chapter. Instead of discussing the impacts to one resource from another (e.g., impacts to wildlife from facilities), this section presents how the potential road and tail would affect other resources (e.g., the impacts of the Northern Corridor on wildlife). Chapter 4 of the PRMP, Table 4.1 presents the potential environmental, design, and

construction impacts for the Northern Corridor for the major resource categories. This section does not, however, discuss all of the impacts that could occur when construction and operation of the North McCullough Road begins. Because the Sloan Canyon NCA Act requires only that BLM recommend a location for the North McCullough Road and Trail ROW in this plan, further study and environmental reviews would be needed once the road and trail are further along in the planning stages.

19(306)

Comment: I would like to see management more management in the [access road], can we have a gate that gets locked at 8:00 at night or something? And then reopen it during the day so people can get back there when the want to... I don't want to see those trails blocked off, but I wouldn't mind if we had somewhere at nighttime that we could close off access but then open it back up.

Response: The North McCullough Road, Dutchman Pass Road, Quo Vadis Mine Road, and Rattlesnake Canyon Road would be open to the public for registered vehicles as shown in Figure 2.12, Sloan Canyon Roads—Registered Motorized Vehicles Map. All other roads and routes would be closed to the public for registered vehicle use. All roads and routes not designated for public use could be physically barricaded, signed, or restored to natural conditions.

19(456)

Comment: The Southern Nevada Water Authority (SNWA) is cooperatively engaged with the City of Henderson and the Las Vegas Valley Water District in evaluating alternatives for a new water transmission pipeline from its River Mountains Water Treatment Facility in East Henderson to somewhere in the area of I-15 corridor. This water transmission pipeline will be required in the future to assure sufficient water supply to meet community needs. One of the pipeline route alternatives being considered by the SNWA is along the right-of-way to be granted to the City of Henderson for the North McCullough Road as stipulated in the Sloan Canyon National Conservation Area Act. On page 2-4 of the Draft RMP/EIS, this right-of-way if proposed to be located in the Northern Corridor. The SNWA asks that RMP/EIS be revised to clearly allow coincident construction of a water transmission pipeline with construction of the proposed North McCullough Road, should that pipeline route alternative be determined by the SNWA to best serve the interests of the community. The justifications for approving coincident construction of the pipeline with the road are as follows: 1. The increased environmental impacts of constructing a pipeline coincident with the road are either non-existent or insignificant. The area of land disturbance for the pipeline construction can be contained within the same area of disturbance necessary for construction of the road. 2. The water pipeline can provide a benefit to the Sloan Canyon National Conservation Area by providing water service for visitor facilities such as restrooms at trailhead parking areas and interpretive kiosks, for administrative or management facilities, or for wildlife watering stations that might be planned proximate to the pipeline routing. On page 2-9 of the Draft RMP/EIS, under the section on Resource Goals and Objectives, one of the specific Facilities Objectives is to "Provide appropriate facilities and/or infrastructure to support management of the NCA." A water pipeline serving NCA facilities would be compliant with the objective also stated on page 2-9 under Lands and Realty to "Allow only development and establishment of new interests within the NCA that are consistent with the intent of the Sloan Canyon NCA Act." Furthermore, as stated on page 2-76, such a pipeline would be compliant with the evaluation criteria of providing a "direct benefit to the NCA, such as utilities to serve NCA facilities." 3. Construction of a water transmission pipeline coincident with the proposed North McCullough Road may be a joint use of community space and resources that overall would result in reduced socioeconomic and cumulative impacts. We believe the justifications presented above are sufficient for approval of a water transmission pipeline along the proposed North McCullough Road through the Sloan Canyon National Conservation Area. Although SNWA is not yet far enough along in it evaluation of alternative pipeline routes to confirm its preference for the North McCullough Road, we would like to have this option preserved and included in the RMP/EI's should the evaluation demonstrate the superior benefit of such an alignment. In the event that construction of the pipeline

coincident with North McCullough Road is not allowed, SNWA might ask for consideration of another alignment through the Sloan Canyon National Conservation Area, either as a surface-cut trench installation along an existing linear disturbance or as an underground tunnel installation with little or no surface disturbance.

Response: The City of Henderson submitted an application to BLM in September 2002, to construct a trail and scenic roadway to provide rural roadway access to the NCA, trailheads, and parking pullouts/overlook points. In November 2002, the Sloan Canyon NCA Act directed BLM to grant the City of Henderson a ROW for the Anthem Trail (N-76312) and the North McCullough Road and Trail (N-65874). The City of Henderson application for the North McCullough Road and Trail did not include a request provision for water transmission pipeline. Under the proposed plan, all new applications for rights-of-way and the application would not be amended to include a pipeline. However, the Southern Nevada Water Authority may submit an application for a new ROW to BLM to construct a water transmission pipeline. The application would be considered on a case-by-case basis and authorized if the action furthers the purpose of the NCA, as described in Section 602 of the Sloan Canyon NCA Act.

19(512)

Comment: In the first paragraph of Section 4.16.4 (Cumulative Impacts by Resource Category, page 4-133), the document states that the North McCullough Road ROW is considered a resource and/or use that would be expected to have negligible cumulative impacts. However, the North McCulllough Road ROW is identified as an action that can result in cumulative impacts, rather than a resource that may be impacted.

Response: The proposed plan was modified by deleting "North McCullough Road ROW" as a resource that may experience cumulative impacts.

19(513)

Comment: Earlier in the document in Section 4.2 (Impacts from North McCullough Road Right-of-Way, page 4-4), the following statement appears: "Table 4.1 compares potential environmental, design, and construction impacts for the Northern and Southern Corridors for resources for which differences can be discerned. This section does not, however, discuss all of the resource impacts that could occur from the construction and operation of one of these alternatives as the Sloan Canyon NCA Act requires BLM to recommend a location for the North McCullough Road and Trail ROW." This statement is somewhat vague, and it is unclear what the intent of the document is. Is it stating that no further evaluation of potential impacts is necessary because it is a given that the North McCullough Road and trails will be constructed based on the requirement in the Sloan Canyon NCA Act? Or is it simply stating that it is not possible at this time to further evaluate the potential impact from the ROW since the actual alignment has not been identified as of this time? Perhaps a better wording of the section would be (changes are [in caps]) "Table 4.1 compares potential environmental, design, and construction impacts for the Northern and Southern Corridors for resources for which differences can be discerned. This section does not, however, discuss all of the resource impacts that could occur WHEN the construction and operation of one of these alternatives BEGINS. SINCE the Sloan Canyon NCA Act ONLY requires BLM to recommend a location for the North McCullough Road and Trail ROW IN THIS PLAN, FURTHER STUDY WILL BE NEEDED ONCE THE ROAD AND TRAIL ARE FURTHER ALONG IN THE PLANNING STAGES." Our intent is to affirm that the North McCullough Road and Trail will be constructed and to clarify whether further environmental study will be required when they are. Please let me know if you have any questions or comments.

Response: The proposed plan was modified as suggested.

19(535)

Comment: In view of the conditional Right-of-Way issued, the Department stands opposed to any road development across the North McCullough Mountains. Such new intrusions will seriously degrade, if not compromise, wildlife use of this area. This said the Department encourages the Bureau's adopting the Southern Corridor. The Southern Corridor coincides with the current power line road and would centralize area impacts. In short, the Southern Corridor offers lesser impacts than the Northern Corridor. Table 4.1. The Resources Impacts of the Northern and Southern corridors seem misrepresented. Under Visual Resources, the visual interference of the power lines along the Southern alignment is brought forth, but is omitted from the Northern alignment. If anything, views of the NCA are interfered with more looking south from the Northern Corridor. At the summit and along the east side of the Northern Corridor, the same power line and other will impair the visual landscape. Views toward the core of the NCA would be significantly better from the Southern Corridor. Should the Northern Corridor be adopted, there should be no roads allowed to connect with the power line road along the crest of the mountain. With any road development, measures for impact minimization and mitigation to wildlife and wildlife habitats are in order. Incorporating structures and other considerations to accommodate wildlife movement in the area will be critical. We also have concerns that there will be significant difficulties in maintaining either a 35 mph or 45 mph speed limits. This is plainly demonstrated on the Red Rock Loop Road and other "scenic" roadways in Clark County.

Response: The proposed plan contains BLM's preference for the northern corridor for the North McCullough Road ROW. This preference is based on public comments, discussions with cooperating agencies, and analysis by the planning team. Since the Sloan Canyon NCA Act only requires BLM to recommend a location for the North McCullough Road and Trail ROW in this plan, further study and environmental reviews would be needed once the road and trail are further along in the planning stages.

APPENDIX K

Agency Correspondence

United States Department of the Interior

FISH AND WILDLIFE SERVICE

Nevada Fish and Wildlife Office
1340 Financial Boulevard, Suite 234
Reno, Nevada 89502
(775) 861-6300 ~ Fax: (775) 861-6301

TAKE PRIDE IN AMERICA

December 22, 2003
File No. 1-5-04-SP-428

Ms. Dana Purrone
Booz, Allen, and Hamilton, Inc.
299 South Main Street Ste 1400
Salt Lake City, Utah 84111

Dear Ms. Purrone:

Subject: Species List for the Sloan Canyon National Conservation Area, Clark County, Nevada

This is in response to your letter received on November 25, 2003, regarding the 48,438 acre Sloan Canyon National Conservation Area, Clark County, Nevada. The following federally listed species may occur in or near the vicinity of the subject project area:

- Desert tortoise (*Gopherus agassizii*) (Mojave population), threatened

This list fulfills the requirement of the Fish and Wildlife Service (Service) to provide information on listed species pursuant to section 7(c) of the Endangered Species Act of 1973, as amended (Act), for projects that are authorized, funded, or carried out by a Federal agency.

Based on the information provided in your correspondence, the proposed project is within the range of the threatened desert tortoise. However, designated critical habitat for the desert tortoise does not occur within the proposed project area. If the proposed project is authorized, funded, or carried out by a Federal agency, the Federal agency or its designated representative is responsible for determining whether or not the proposed project may affect a listed species.

The Nevada Fish and Wildlife Office no longer provides species of concern lists. Most of these species for which we have concern, are also on the sensitive species list for Nevada maintained by the State of Nevada's Natural Heritage Program (Heritage). Instead of maintaining our own list, we are adopting Heritage's sensitive species list and partnering with them to provide distribution data and information on the conservation needs for sensitive species to agencies or project proponents. The mission of Heritage is to continually evaluate the conservation priorities of native plants, animals, and their habitats, particularly those most vulnerable to extinction or are in serious decline. Consideration of these sensitive species and exploring management

alternatives early in the planning process can provide long-term conservation benefits and avoid future conflicts.

For a list of sensitive species by county, visit Heritage's website at www.heritage.nv.gov. For a specific list of sensitive species that may occur in the project area, you can obtain a data request form from the website or by contacting Heritage at 1550 East College Parkway, Suite 137, Carson City, NV 89706, 775-687-4245. Please indicate on the form that your request is being obtained as part of your coordination with the Service under the Act. During your project analysis, if you obtain new information or data for any Nevada sensitive species, we request that you provide the information to Heritage at the above address.

Also, we are concerned that the proposed project may impact plant species listed as sensitive under the Heritage Program. These species may also be listed as critically endangered by the State of Nevada under Nevada Revised Statutes (NRS) 527.260-300. For these species, no member of its kind may be removed or destroyed at any time by any means except under special permit issued by the State Forester (NRS 527.270). It should be noted that many of the plant species on the State's critically endangered list are not federally listed by the Service because of the protection afforded to them under the State law. Consideration of these species during project impact evaluation and planning, as well as early coordination with the State is important to assist with species conservation efforts and to prevent the need for Federal listing actions in the future.

Finally, based on the Service's conservation responsibilities and management authority for migratory birds under the Migratory Bird Treaty Act (MBTA) of 1918, as amended (16 U.S.C. 703 et seq.), we are concerned about potential impacts the proposed project may have on migratory birds in the project area. Direct impacts to migratory birds on project lands and indirect impacts to migratory birds on adjacent areas should be considered during project evaluation.

Enclosure A provides a discussion of the responsibilities Federal agencies have under section 7(c) of the Act and the conditions under which a biological assessment must be prepared by the lead Federal agency or its designated non-Federal representative. If the proposed project is authorized, funded, or carried out by a Federal agency, and if it is determined that a listed species may be affected by the proposed project, the Federal agency should initiate consultation pursuant to 50 CFR § 402.14. Informal consultation may be utilized prior to a written request for formal consultation to exchange information and resolve conflicts with respect to a listed species. If a biological assessment is required, and it is not initiated within 90 days of your receipt of this letter, you should informally verify the accuracy of this list with our office. If, through informal consultation or development of a biological assessment, or both, you determine that the proposed action is not likely to adversely affect the listed species, and the Service concurs in writing, then the consultation process is terminated and formal consultation is not required.

Please reference File No. 1-5-04-SP-428 in future correspondence concerning this species list. If you have any questions regarding this correspondence or require additional information, please contact Shawn Goodchild in our Southern Nevada Field Office at (702) 515-5230.

Sincerely,

Robert D. Williams
Field Supervisor

Enclosure

cc:
Assistant Field Manager, Las Vegas Field Office, Bureau of Land Management, Las Vegas, Nevada
Regional Forester, Southern Region, Nevada Division of Forestry, Las Vegas, Nevada

ENCLOSURE A

FEDERAL AGENCIES' RESPONSIBILITIES UNDER SECTIONS 7 (a) and (c)
OF THE ENDANGERED SPECIES ACT

SECTION 7 (a); Consultation/Conference

Requires:

1) Federal agencies to utilize their authorities to carry out programs to conserve **endangered and threatened species**;

2) Consultation with the Fish and Wildlife Service (Service) when a Federal action may affect a listed endangered or threatened species to insure that any action authorized, funded or carried out by a Federal agency is not likely to jeopardize the continued existence of listed species or result in the destruction or adverse modification of critical habitat. The process is initiated by the Federal agency after determining the action may affect a listed species or critical habitat;

3) Conference with the Service when a Federal action is likely to jeopardize the continued existence of a proposed species or result in destruction or adverse modification of proposed critical habitat.

SECTION 7 (c): Biological Assessment - Major Construction Activity 1/

Requires Federal agencies or their designees to prepare a Biological Assessment (BA) for major construction activities. The BA analyzes the effects of the action on listed and proposed species. The process begins with a Federal agency requesting from the Service a list of proposed and listed threatened and endangered species. The BA should be completed within 180 days after its initiation (or within such a time period as is mutually agreeable). If the BA is not initiated within 90 days of receipt of the list, the accuracy of the species list should be informally verified with the Service. No irreversible commitment of resources is to be made during the BA process which would foreclose reasonable and prudent alternatives to protect endangered species. Planning, design, and administrative actions may proceed; however, no construction may begin.

We recommend the following for inclusion in the BA:

1. An onsite inspection of the area affected by the proposal which may include a detailed survey of the area to determine if the species or suitable habitat are present.

2. A review of literature and scientific data to determine species distribution, habitat needs, and other biological requirements.

3. Interviews with experts, including those within the Service, State conservation departments, universities, and others who may have data not yet published in scientific literature.

4. An analysis of the effects of the proposal on the species in terms of individuals and populations, including consideration of cumulative effects of the proposal on the species and its habitat.

5. An analysis of alternative actions considered.

6. Documentation of study results, including a discussion of study methods used, any problems encountered, and other relevant information.

7. Conclusion as to whether or not a listed or proposed species will be affected.

Upon completion, the BA should be forwarded to our office with a request for consultation, if required.

1/ A construction project (or other major undertaking having similar physical impacts) is a major Federal action significantly affecting the quality of the human environment as referred to in NEPA (42 U.S.C. 4332 (2) C).

APPENDIX L

Biological Assessment

TABLE OF CONTENTS

I. BACKGROUND 1
Regulatory Responsibility *3*
Purpose and Need for the Sloan Canyon Resource Management Plan *3*
II. PROPOSED ACTION 3
III. CONSERVATION MEASURES 4
Ecosystem Conservation Measures *4*
Desert Tortoise Conservation Measures *7*
IV. AFFECTED ENVIRONMENT 16
Planning Area Vegetation *16*
V. STATUS OF FEDERALLY LISTED SPECIES 18
Desert Tortoise *18*
Plant Species of Concern *20*
Wildlife Species of Concern *20*
VI. ISSUES OF CONCERN 21
Wilderness *21*
Recreation Management *22*
Transportation *24*
Grazing Management *24*
Noxious and Invasive Weeds *28*
Mineral Development *28*
Lands and Realty *28*
VII. EFFECTS OF THE PREFERRED ALTERNATIVE ON LISTED SPECIES 29
Direct Effects *29*
Indirect Effects *30*
Cumulative Effects *31*
VIII. DETERMINATION 32
IX. LIST OF PREPARERS 32
X. BLM POINT OF CONTACT 32
XI. LITERATURE CITED 33

LIST OF FIGURES

FIGURE L.1. SLOAN CANYON NCA PLANNING AREA 2
FIGURE L.2. PROPOSED FACILITIES 5
FIGURE L.3. MANAGEMENT EMPHASIS AREAS 6
FIGURE L.4. HIKING 13
FIGURE L.5. EQUESTRIAN USE 14
FIGURE L.6. MOUNTAIN BIKING 15
FIGURE L.7. PETROGLYPH MANAGEMENT AREA 23
FIGURE L.8. CAMPING 25
FIGURE L.9. DOGS 26
FIGURE L.10. SLOAN CANYON ROADS REGISTERED MOTOR VEHICLES 27

LIST OF TABLE

TABLE L.1. SENSITIVE PLANT SPECIES WITHIN THE SLOAN CANYON NCA 20

SLOAN CANYON RESOURCE MANAGEMENT PLAN BIOLOGICAL ASSESSMENT

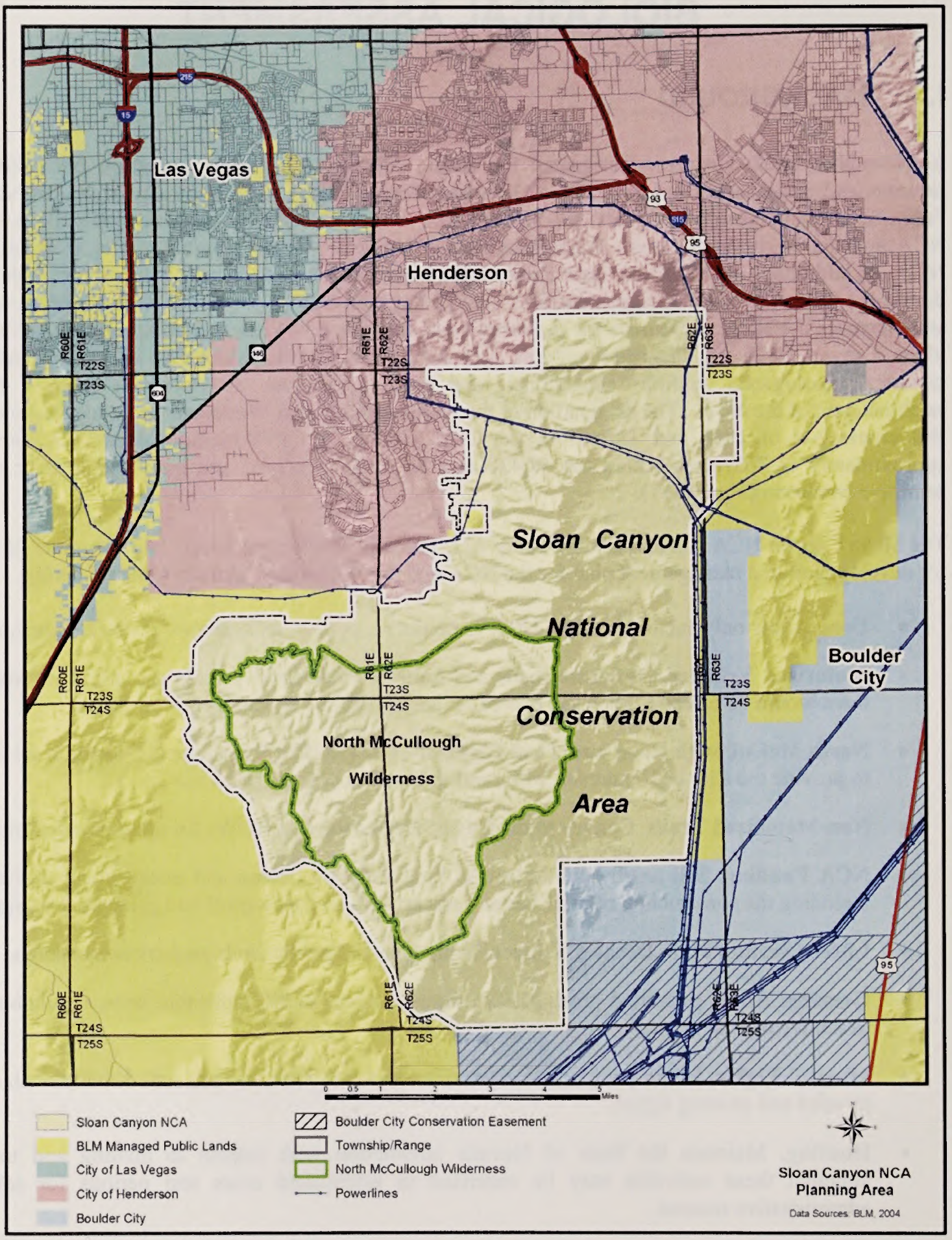
I. BACKGROUND

In November 2002, Congress designated the Sloan Canyon National Conservation Area (NCA) to preserve and protect a portion of southern Nevada's Mojave Desert. The Clark County Conservation of Public Land and Natural Resources Act of 2002 (the Clark County Act) established the Sloan Canyon NCA and the North McCullough Wilderness (the Wilderness), which is entirely contained within the NCA. In addition, Title VI of the Clark County Act, hereafter referred to as the Sloan Canyon NCA Act, directs the Bureau of Land Management (BLM) to manage the NCA in a manner that conserves, protects, and enhances the NCA's resources for the benefit and enjoyment of present and future generations. The Sloan Canyon NCA Act identifies cultural, archaeological, natural, wilderness, scientific, geological, historical, biological, wildlife, educational, and scenic resources as important reasons for the establishment of the NCA. The designation of the North McCullough Wilderness, administered under the Wilderness Act of 1964 and Title II of the Clark County Act ("Wilderness Areas"), requires that approximately 14,763 acres within the 48,438-acre NCA be preserved and protected in their natural, primitive condition (Figure L.1).

The Sloan Canyon NCA Act and Clark County Act, Title II ("Wilderness Areas") set a number of criteria for development of a management plan for the NCA and the Wilderness, including the following:

- **Uses.** Allow only such uses of the NCA as conserve, protect, and enhance the NCA's resources.
- **Motorized Vehicles.** Designate roads and trails for motorized vehicle use; all other roads and trails would be closed to such use except for administrative or emergency purposes.
- **North McCullough Road and Trail Right-of-Way (ROW).** Recommend a location for a ROW to provide the City of Henderson with rural roadway access to the NCA.
- **Non-Motorized Trails.** Convey to the City of Henderson two ROWs for nonmotorized trails.
- **NCA Funding.** Sell nearby public land to fund the conservation and management of the NCA, including the construction of facilities and research on archaeological and geological resources.
- **Litter Cleanup Plan.** Develop a litter cleanup plan and public lands awareness campaign.
- **Grazing.** Allow permitted grazing to continue, subject to all applicable laws, regulations, and executive orders.
- **Mineral Rights.** Withdraw all lands from mineral exploration, leasing, and development, subject to valid and existing rights.
- **Hunting.** Maintain the State of Nevada jurisdiction with respect to hunting and trapping, although these activities may be restricted in established areas and periods for safety or administrative reasons.

Figure L.1. Sloan Canyon NCA Planning Area



The Sloan Canyon NCA Act also declared that no buffer zones or limitations on uses of land outside the NCA are to be established, and the Clark County Act, Title II ("Wilderness Areas") contains directives for management of all 18 wilderness areas designated by the act, including the North McCullough Wilderness.

This Biological Assessment (BA) addresses the biological impacts of the proposed management actions on the federally listed species identified in the Proposed Resource Management Plan (PRMP)/Environmental Impact Statement (EIS) for the public lands managed by BLM in the Sloan Canyon NCA. After the approval of the PRMP via the issuance of a Record of Decision, the management actions would be implemented.

Regulatory Responsibility

The Nevada Division of Wildlife (NDOW) is responsible for the management of wildlife populations within the Sloan Canyon NCA. The BLM Las Vegas Field Office is responsible for managing the habitat and also performs an integral role in sustaining and ensuring the ecological health and viability of the wildlife populations. The U.S. Fish and Wildlife Service (USFWS) provides regulatory oversight for all species that are listed, proposed for listing, or candidates for listing as threatened or endangered under the Endangered Species Act (ESA) and also administers the Migratory Bird Treaty Act, which protects migratory bird species.

Purpose and Need for the Sloan Canyon Resource Management Plan

The purpose of the RMP is to provide guidance for BLM's management of the NCA, consistent with the spirit and intent of the Sloan Canyon NCA Act and other existing statutes, regulations, and policy, including the Federal Land Policy and Management Act of 1976 (FLPMA, 43 U.S. Code [U.S.C.] 1701 et seq.). The RMP planning effort is comprehensive in nature, evaluating existing management plans and resolving or addressing NCA issues identified through agency, interagency, and public scoping efforts. This effort also identifies the area's vision, long-range management goals, objectives, and actions, as well as options for meeting those objectives.

The Draft RMP/EIS evaluated and compared the current management situation (No Action Alternative) and three potential management alternatives, along with their associated environmental consequences. The management alternatives included an alternative that emphasized natural character (Alternative B); one that allows moderate developed use while maintaining natural character (Alternative C); and a third that emphasizes developed uses (Alternative D). In addition, the Draft RMP identified a preferred alternative that was modified as the proposed plan based on input received on the Draft RMP/EIS. Understanding the potential effects of the range of considered management actions would assist BLM in making informed decisions on managing and allocating uses of the land and resources within the NCA.

II. PROPOSED ACTION

The Proposed Management Plan was selected because it serves the purpose of the NCA as described by the enacting legislation and the NCA vision as developed by the interagency planning team. It provides for moderate levels of developed recreation, facilities, and transportation, with management actions to ensure that neither resources nor visitor experiences are unacceptably degraded. Elements of each of the draft alternatives, including Alternative B, the preferred Alternative C, and Alternative D, are included in the PRMP. Table ES-1 in the Executive Summary of the PRMP summarizes and compares key management under the PRMP and the alternatives considered in the Draft RMP (BLM 2005).

Visitor use of the North McCullough Range was low before the designation of the Sloan Canyon NCA and North McCullough Wilderness; however, because of the rapid growth in the Las Vegas Valley, an increase in visitors is expected. To respond to any impact from such an increase in visitors, the Proposed Action contains flexibility that enables adjustments in response to unforeseen pressures from use or resource conflicts.

The Proposed Action focuses on a moderate increase in development while maintaining the natural characteristics of the NCA. Recreational opportunities, such as hiking, mountain biking, and equestrian use and dispersed camping, would be provided. The Sloan Canyon Petroglyph Site, a significant cultural resource, would be accessed mainly from a visitor center at the north end of Sloan Canyon (Figure L.2). Several designated dirt roads would provide access into the NCA.

BLM has identified Management Emphasis Areas that are areas for potential increased development at major access points to the NCA and near the City of Henderson's residential development. The north access to Sloan Canyon, where the proposed visitor center could be located, would be zoned as Developed, and the Petroglyph Management Area would be designated as Semi-Primitive. In addition, the area north of the North McCullough Road and Trail ROW, near the Dutchman Pass Trailhead, would be zoned Roaded Natural, as would the area south of the Quo Vadis Trailhead (Figure L.3).

The Sloan Canyon NCA Act requires BLM to provide access for installing, repairing, maintaining, and reconstructing water developments, including water guzzlers that would enhance the NCA by promoting healthy, viable, and more widely distributed wildlife populations. Currently, the NCA contains two guzzlers, with another directly adjacent to the NCA's southeastern border.

The Sloan Canyon NCA Act directed BLM to grant the City of Henderson a right-of-way (ROW) for the North McCullough Road (N-65874), which is envisioned as a scenic roadway constructed to provide access to the NCA, trailheads, and overlook points. The Act requires BLM to recommend a location for the North McCullough Road as part of this planning process. Based on ground surveys, field visits, impact assessments, and extensive dialogue with City of Henderson planners and engineers, as well as cooperating agencies, BLM recommends the proposed Northern Corridor as the location for North McCullough Road. Any future development related to this scenic roadway-associated trail would require additional environmental review.

III. CONSERVATION MEASURES

BLM would implement a Biological Management Strategy along with implementation of the RMP for the Sloan Canyon NCA. The Biological Management Strategy would address the management of species and their habitats not specifically covered under formal consultation processes. Many of these conservation measures are already being implemented in relation to other federal actions underway in the Sloan Canyon NCA and the surrounding area. Additional conservation measures would be implemented for the listed federal species, the desert tortoise.

Ecosystem Conservation Measures

Ecosystem conservation measures associated with the Biological Management Strategy would include—

- Biological surveys for collection of baseline data on the western chuckwalla (*Sauromalus obesus*). These actions would include visual encounter and scat surveys.
- Blue Diamond cholla and BLM sensitive penstemon species would be protected to avoid habitat fragmentation in areas of facilities development and trail construction.

Figure L.2. Proposed Facilities

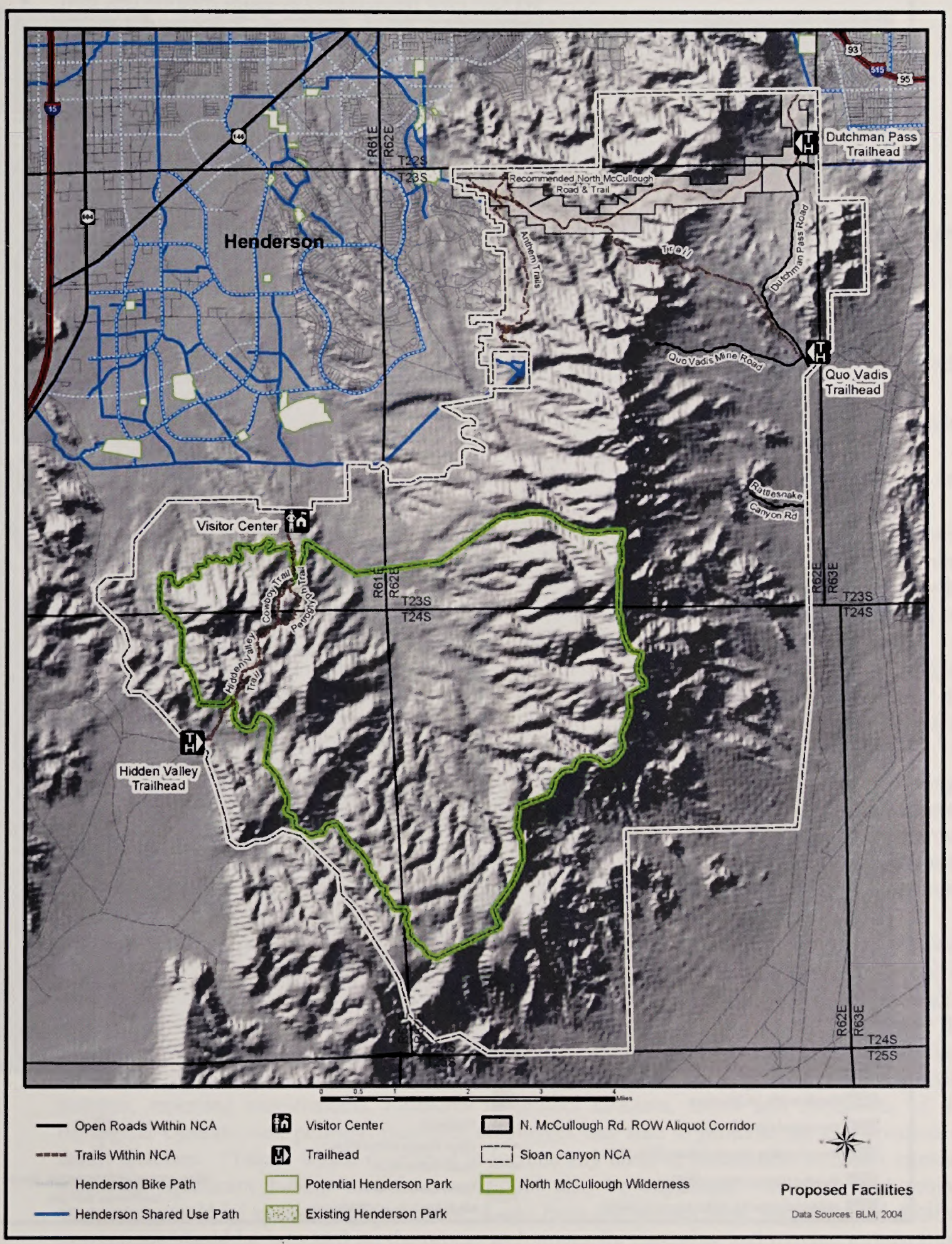
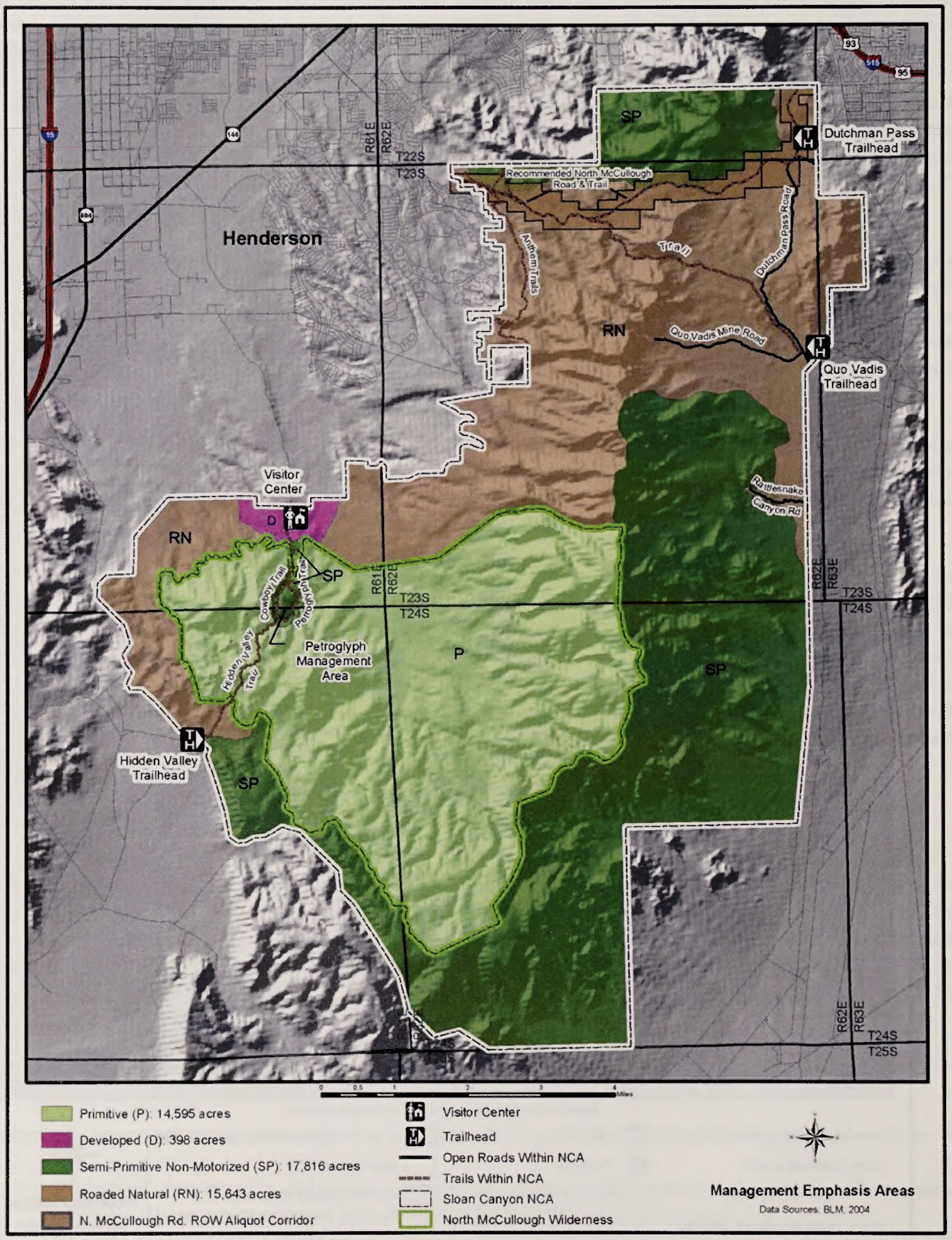


Figure L.3. Management Emphasis Areas



Additional surveys would be considered for:

- Bats and bighorn sheep in consultation with NDOW
- Reptiles—night surveys
- Avifauna nesting and wintering surveys
- Raptor nesting—hawks
- Burrowing owl nesting.

Desert Tortoise Conservation Measures

To minimize the effects of the Proposed Action on the desert tortoise, BLM would implement several protective measures, which are described in the subsections below.

Proposed Measures for All Activities

1) *Speed Limit*: Within Clark County, the speed limit is 25 miles per hour on unposted county roads. This speed would be established for all activities at all times, unless otherwise signed.
2) *Vehicles*: All project- or event-related individuals would check underneath stationary vehicles before moving them.
3) *Vehicle Traffic:* This traffic would be restricted to designated roads, except for emergency- and administrative-related traffic.
4) *Litter Control:* Litter control would be implemented and enforced by BLM. Trash containers would remain covered, must be raven-proof, and must be emptied frequently enough to prevent overflow of materials. Trash, litter, and project debris would be transferred to a designated solid waste disposal facility. Vehicles hauling trash must be secured to prevent litter from blowing out along the road.
5) *Tortoise Mortality/Injury*: BLM Wildlife staff (702-515-5000) and the USFWS (702-515-5230) must be notified of any desert tortoise death or injury in the NCA by close of business of the following work day. In addition, the USFWS Division of Law Enforcement would be notified in accordance with the reporting requirements of the USFWS.
6) *Tortoise Activity*: The period of greatest tortoise activity is generally defined as March 1 through October 31. However, unseasonably warm weather or precipitation outside of this period may result in tortoise activity, particularly by hatchling and juvenile tortoises, and thus warrant adherence to the established requirements for periods of greater activity. Similarly, BLM may determine that additional measures are appropriate for projects planned for the end or beginning of either period if conditions are suitable for desert tortoise to be active.
7) *Education Program*: A BLM- or USFWS-approved biologist (as defined below) would facilitate a tortoise education program for all supervisors, workers, permittees, and other employees or participants involved in projects covered under the RMP. The program would consist of either a presentation or a fact sheet, as determined by project-level consultation between BLM and the USFWS, and would include information on the life history of the desert tortoise, legal protection for desert tortoises, penalties for violations of federal and State laws, general tortoise activity patterns, reporting requirements, measures to protect tortoises, terms and conditions of the Biological Opinion, and personal measures employees can take to promote the conservation of desert tortoises. "Take," which is defined to include any harm or harassment to desert tortoise, including significant habitat modification, would also be explained. Workers and project associates would be encouraged to carpool to and from the project sites. Specific and detailed instructions would be provided on the proper techniques for capturing and moving tortoises that appear onsite, if appropriate, these instructions would be in accordance with the USFWS-

approved protocol. Currently, the USFWS-approved protocol is *Desert Tortoise Council 1994*, as revised in 1999.

8) *Biologist Approval*: BLM and USFWS wildlife staff must approve the biologists who would be assigned to implement the terms and conditions of the Biological Opinion or the permit issued by BLM. Any biologist or firm not previously approved must submit a statement of qualifications in the USFWS-developed format and be approved by the wildlife staff before the person or firm is authorized to represent BLM in complying with the terms and conditions of the Biological Opinion. Other personnel may assist in implementing conservation measures but must be under direct field supervision by the authorized biologist.

9) *Biologist Qualifications*: In accordance with *Procedures for Endangered Species Act Compliance for the Mojave Desert Tortoise* (USFWS 1992), any authorized desert biologist should hold at least a bachelor's degree in biology, ecology, wildlife biology, herpetology, or a closely related field, as determined by BLM and the USFWS. The biologist must have demonstrated a minimum of 60 days of prior field experience using accepted resource agency techniques to survey for desert tortoises and tortoise indicators. All tortoise biologists would comply with the USFWS-approved handling protocol (*Desert Tortoise Council 1994* rev. 1999). In addition, the biologists would have the ability to recognize and accurately record survey results and must be familiar with the terms and conditions of the Biological Opinion that resulted from project-level consultation between BLM and the USFWS.

10) *Tortoises in Harm's Way*: If a tortoise at the project/activity site is found within harm's way, all potentially harmful activity would cease until the tortoise moves or is moved out of harm's way by an authorized biologist. If a desert tortoise is in *imminent danger*, the tortoise would be moved out of harm's way and onto adjacent BLM land using techniques described in the tortoise education program.

11) *Moving Tortoises*: Tortoises that are moved must be placed in the shade of a shrub, in a natural unoccupied burrow similar to the hibernaculum in which it was found or in an artificially constructed burrow in accordance with the tortoise handling protocol. Tortoises encountered would be treated in a manner consistent with the appropriate measures in the Biological Opinion.

12) *Permits*: All appropriate State and federal permits, including NDOW and USFWS permits for handling desert tortoises or their parts must be acquired by the tortoise biologists or other personnel before project initiation and before handling any desert tortoise or their parts or conducting any activity requiring a permit.

13) *Project Oversight*: One or more designated BLM representatives would be responsible for overseeing compliance with the reasonable and prudent measures, terms and conditions, reporting requirements, and reinitiation requirements identified in the Biological Opinion. The designated representative(s) would provide coordination among the permittee, project proponent, BLM, and the USFWS.

14) *Desert Tortoise Burrows*: Burrows would be avoided whenever possible; if such avoidance is not possible, the burrow would be cleared in accordance with the measures set forth in the Biological Opinion.

15) *Heat Stress*: Desert tortoises encountered experiencing heat stress would be placed, by an authorized tortoise biologist, in a tub with 1 inch of 76°F to 90°F water for at least 20 minutes or until heat stress symptoms are no longer evident.

16) *Temperature Restrictions*: Desert tortoises would be treated in a way that ensures that they do not overheat or exhibit signs of overheating (e.g., gaping, foaming at the mouth) and are not placed in a situation in which they cannot maintain the surface and core temperatures necessary to their well-being. Desert tortoises would be kept shaded at all times until it is safe to release them. No desert tortoise would be captured, moved, transported, released, or purposefully caused to leave its burrow for any reason when the ambient air temperature is above 95°F (35°C). Ambient air

temperature would be measured in the shade, protected from wind, and at a height of 2 inches (5 centimeters) above the ground surface. No desert tortoise would be captured if the ambient air temperature is anticipated to exceed 95°F (35°C) before handling and relocation can be completed. If the ambient air temperature exceeds 95°F (35°C) during handling or processing, desert tortoises would be kept shaded in an environment that does not exceed 95°F (35°C), and the animals would not be released until ambient air temperature declines below 95°F (35°C).

17) *Reporting*: Within 30 days of completing a project, the project proponent, permittee, or BLM project lead must submit a document to the BLM wildlife biologist showing the number of acres disturbed, remuneration fees paid, and number of tortoises observed or taken (including captured and displaced, killed, injured, or harassed by other means) during implementation of programmatic actions.
18) *Previous Disturbance*: Overnight packing and storage of equipment and materials, including stockpiling, would be within previously disturbed areas or within areas cleared by a tortoise biologist to minimize habitat destruction.
19) *Project Boundaries*: Project activity areas would be clearly marked or flagged at the outer boundaries before onset of construction. All activities would be confined to designated areas. When new access routes have been identified for development, the tortoise biologist would flag routes before surface disturbance.

Proposed Measures for Actions Involving Ground Disturbance

1) *Blading of Vegetation*: This activity would occur only to the extent necessary and would be limited to areas designated for that purpose by BLM or the tortoise biologist.
2) *Fees*: Before issuance of authorization, and before any surface disturbing activity, BLM or the project proponent would pay an established remuneration fee ($682 per acre of surface disturbance, if paid prior to March 1, 2006). This rate is indexed annually for inflation on the basis of the Bureau of Labor Statistics, Consumer Price Index for All Urban Consumers (CPI-U). Information on the CPI-U can be found on the Internet at *http://stats.bls.gov/news/release/cpi.nws.htm*. An exception to the requirement is made if the disturbance for the project is less than 0.25 acre or if the activities result in a long-term benefit for the species (e.g., trail realignment to minimize habitat impacts).
3) *Notification:* The project applicant/BLM lead would notify the BLM Wildlife staff representative responsible for NEPA review of the project at least 10 days before initiation of a project (702 515-5000).
4) *Clearance*: All project areas, fence lines, and staging areas would be cleared of tortoises by an authorized biologist immediately before the start of ground disturbance using 100 percent coverage survey techniques. During the active tortoise season, an authorized tortoise biologist would be onsite during fence construction to ensure that no tortoises are harmed. Burrows found outside the area to be disturbed would be flagged and avoided. Clearance would involve excavating nests; relocating eggs; flagging avoidable burrows; collapsing unavoidable, unoccupied burrows; and relocating tortoises in accordance with the USFWS-approved protocol for handling desert tortoises (*Desert Tortoise Council 1994* rev. 1999). If disturbance is planned a period when tortoises are not expected to be active, surveys may be conducted earlier, as determined during project-specific consultation.
5) *Fencing*: All tortoise-proof fencing would be at least 18 inches high (above ground level). Fencing may be permanent or temporary, as determined on a project-by-project basis. Temporary fence design should consist of 1-inch mesh or 1-inch horizontal by 2-inch vertical mesh (hardware cloth or plastic may be installed flush with the ground). Temporary tortoise-proof fencing would consist of 1-inch horizontal by 2-inch vertical wire mesh. Where feasible, the

fence would be buried 6 to 12 inches below ground. In situations in which it is not feasible to bury the fence, the lowest 12 inches of the fence would be bent at a 90-degree angle toward the direction from which tortoises are expected to approach the fence, and would be covered with cobble or other suitable material to ensure that tortoises or other animals cannot dig underneath and create gaps through which tortoises can pass.

6) *Clearance Following Fence Construction*: of project activities, all desert tortoises would be removed from the site. An authorized biologist would oversee the survey for and removal of tortoises using techniques providing 100 percent coverage of all areas. Two complete survey passes of 100 percent coverage would be accomplished. If, on the second pass, additional tortoises are encountered, a third pass would be conducted. Clearance of the fenced area would involve activities described in Measure 23 above.

During Ground Disturbing Activities

1) *Fence Inspection/Maintenance*: Fencing would be inspected daily, and zero clearance would be maintained between the bottom of the fence and the ground. Inspections/maintenance would also ensure that any bent portions are properly covered. Additional monitoring and maintenance would include regular removal of trash and sediment accumulation and would check for rodent damage or other breaches when using temporary tortoise-proof fencing.
2) *Onsite Biologist*: Unless the area has been fenced and cleared, or the USFWS and BLM have determined through project-level consultation that an onsite biologist is not necessary, the project would require at least one authorized biologist onsite for project construction during the period of greatest tortoise activity (March 1 through October 31). The biologist(s) should be on-call at other times.

Following Termination of Ground Disturbing Activities

1) *Fence Removal*: Temporary fencing would be removed at the end of the construction activity. Permanent fencing may be removed upon termination and reclamation of the project or when it is determined by BLM and the USFWS that the fence is no longer necessary.
2) *Restoration*: Temporary disturbance areas would be restored in accordance with the restoration protocols for the project.

Proposed Measures for Activities That Involve Maintenance or Modification of Existing Sites and Are Limited to Existing Disturbed Areas Adjacent to Tortoise Habitat

1) *Clearance-Barren/Unsuitable Areas*: All project areas that are barren or unsuitable for tortoises but that occur adjacent to creosote-bursage or Mojave mixed scrub vegetation would be cleared by an authorized biologist before the start of maintenance or modification. Surveys for such clearance would use 100 percent coverage survey techniques, and survey/clearance would be performed no more than 3 days before initiation of construction. Areas within blackbrush would be cleared only if reconnaissance surveys reveal tortoise sign within the project area.
2) *Fence High-Risk Areas*: If activities are expected to occur during the tortoise active season, and it is determined there is a high risk to tortoises (e.g., a tortoise has been found within 1,000 feet of the project area or heavy machinery is used), the project area would be fenced with tortoise-proof fencing in accordance with Measures 23, 24, 25, 26, and 27) above.
3) *Onsite Biologist*: Unless the project area has been fenced and cleared, a survey has been conducted and determined that no tortoises or active burrows are within 1,000 feet of the project

area, or the USFWS and BLM have determined an onsite biologist is not necessary, the project would require an authorized biologist(s) onsite for project construction during the period of greatest tortoise activity (March 1 through October 31), and on call at other times.

Proposed Measures for Commercial, Filming, or Research/Monitoring Permits

1) *Unauthorized Introductions*: The permittee would not damage, collect, or introduce plants or animals to any location, unless specifically permitted by BLM.
2) *Existing Disturbance*: All motorized vehicles, parking, and activities are restricted to designated roads and existing disturbed areas. No additional ground disturbance would be allowed.
3) *Marking/Infrastructure*: No painting of rocks, establishment of permanent markers, or installation of permanent infrastructure is allowed as part of these activities.
4) *Removal of Materials*: The applicant is responsible for removing any project-related materials, such as flagging and markers, immediately after any event or activity.
5) *Compliance*: If the project involves studies affecting species protected by the Migratory Bird Treaty Act or ESA, before research, inventory, or monitoring, proof of the USFWS permit authorizing this activity must be provided to BLM at:

Bureau of Land Management Renewable Resources
Attn: Wildlife Staff
4701 North Torrey Pines Drive
Las Vegas, Nevada 89130

6) *Reports*: Reports would be submitted to the BLM Wildlife staff representative at the end of the permit period (or annually, for multiple-year permits) showing the number of desert tortoises injured, killed, collected, encountered, or moved as a result of the permitted activity. Additional information for collections and research permits should include geographic coordinates or geographic information system (GIS) coverage of the collection sites and the number and location of species collected in association with the permitted activities.
7) *Provide Data*: For research, inventory, or monitoring to collect data on desert tortoises, a copy of the study results, including any management recommendations, would be submitted to the USFWS and BLM Wildlife staff representative upon completion of the project, to aid in recovery and future management of the tortoise and its habitat.
8) *Weed-Free Hay*: Only certified weed-free hay may be used by permittees and participants associated with equestrian use.
9) *Temporary Water Troughs*: Any temporary water troughs would be removed at the conclusion of the event. If troughs are drained onsite, they would be drained in such a way as to minimize disturbance of natural wash systems.

Proposed Measures for Restoration Activities and Mechanical Weed Treatments

1) *Clearance*: All sites including cross-country access routes and staging areas would be cleared in accordance with Measures 23 and/or 30.
2) *Onsite Biologist or Fence/Clearance*: For restoration actions and weed treatment, when mechanical treatments are employed, an authorized biologist must be present during periods of tortoise activity (generally from March 1 through October 31) to ensure that desert tortoises are not inadvertently harmed. As an alternative to having a biologist onsite, the area may be temporarily fenced with tortoise-proof fencing. If temporary fencing is constructed, the fence

line would be surveyed by a tortoise biologist before construction of the fence. The area within the fence would be surveyed for, and cleared of, desert tortoises after construction of the fence to ensure that no tortoises are trapped inside the fence.

3) *Project Access, Vehicles*: All vehicle traffic would be restricted to designated roads, except for traffic for emergency or administrative purposes, in which new access routes would be created only when absolutely necessary and for which disturbance would be minimized by using the least disruptive tool that can accomplish the job. If there is no existing access to the site, it would not be treated or restored unless it is a hazard to desert tortoises (e.g., pits or holes that might trap animals).

Proposed Measures for Wildlife Management Activities

1) *Vehicle Access*: All vehicle use in desert tortoise habitat for these actions would be restricted to designated roads and trails. No new access roads would be created.
2) *Disturbance*: Activities that involve ground disturbance, such as installation of water sources, fences, or other infrastructure, would comply with the proposed measures for ground disturbing activities.

Limitations and Standard Operating Procedures For Casual/Dispersed Recreation

1) *Special Recreation Permits (SRP)*: SRPs would be issued for commercial trail guiding operations on a case-by-case basis.
2) *Hiking:* Cross-country hiking would be allowed throughout the NCA until trails are designated and constructed, after which time hikers would be required to stay on trails in the areas of the NCA, as designated in the RMP (Area L) (Figure L.4). Cross-country hiking would continue to be allowed in other areas.
3) *Equestrian Use*: Cross-country equestrian use would be allowed until trails are designated and constructed, after which time equestrian users would be required to stay on trails in the areas of the NCA, as designated in the RMP. Cross-country equestrian use would continue to be allowed in other areas (Figure L.5).
4) *Mountain Biking*: Use of mountain bikes is restricted to the designated roads or trails. Cross-country mountain bike use, as well as use within the North McCullough Wilderness, is prohibited (Figure L.6).
5) *New Trails*: No new trail development is permitted without BLM authorization. An interdisciplinary BLM team would review all new construction.
6) *Trail Monitoring*: All trails would be monitored, and additional protective measures would be implemented as needed.
7) *Cross-Country Travel*: Occasionally, unauthorized cross-country driving or vehicle-dumping occurs within the NCA. These incidents are typically handled by law enforcement through such means as vehicle recovery and photography. In some cases, the recovery actions can create a greater degree of habitat disturbance than did the initial trespass action; however, these actions are pursued, with restoration at the cost of the trespasser.

Figure L.4. Hiking

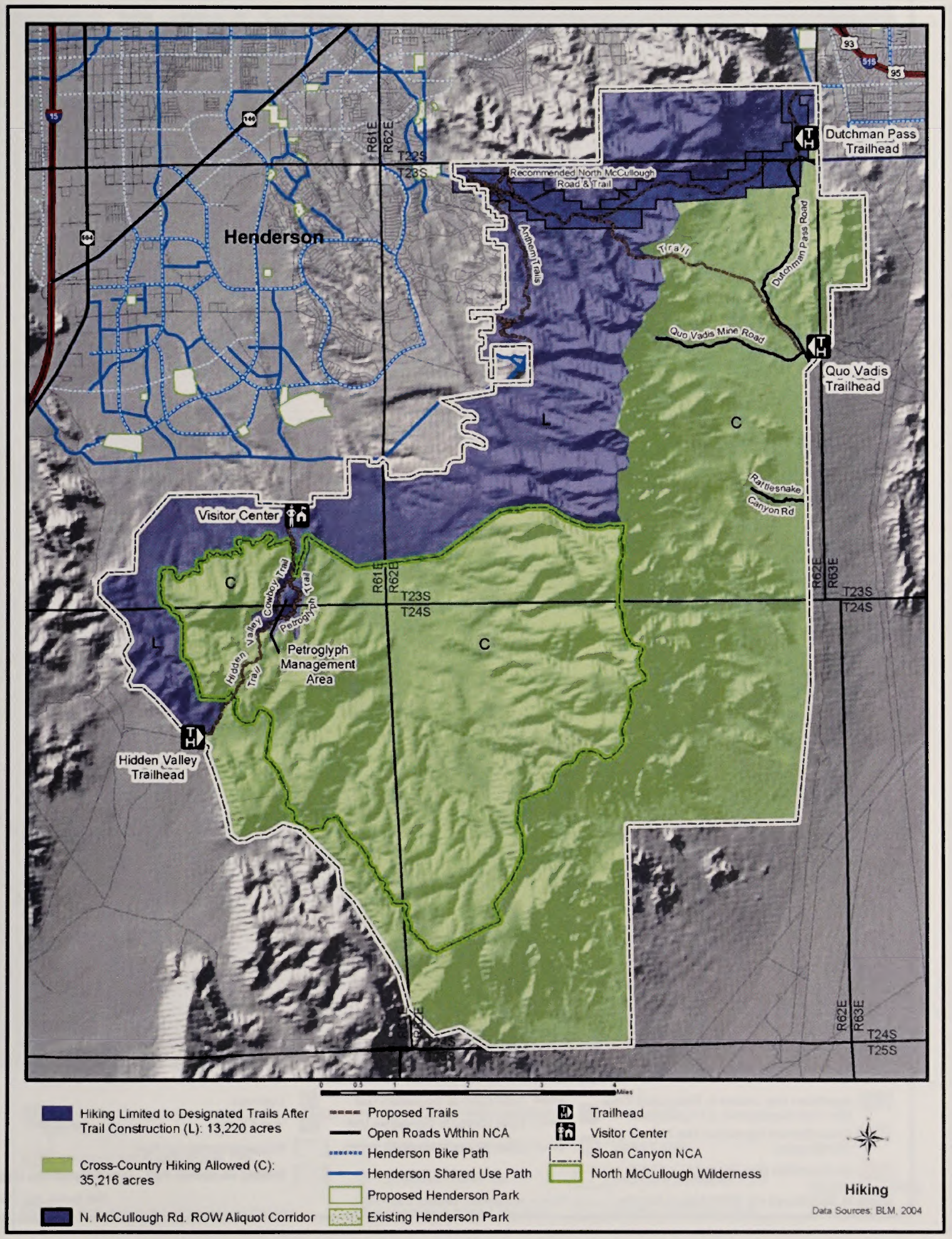


Figure L.5. Equestrian Use

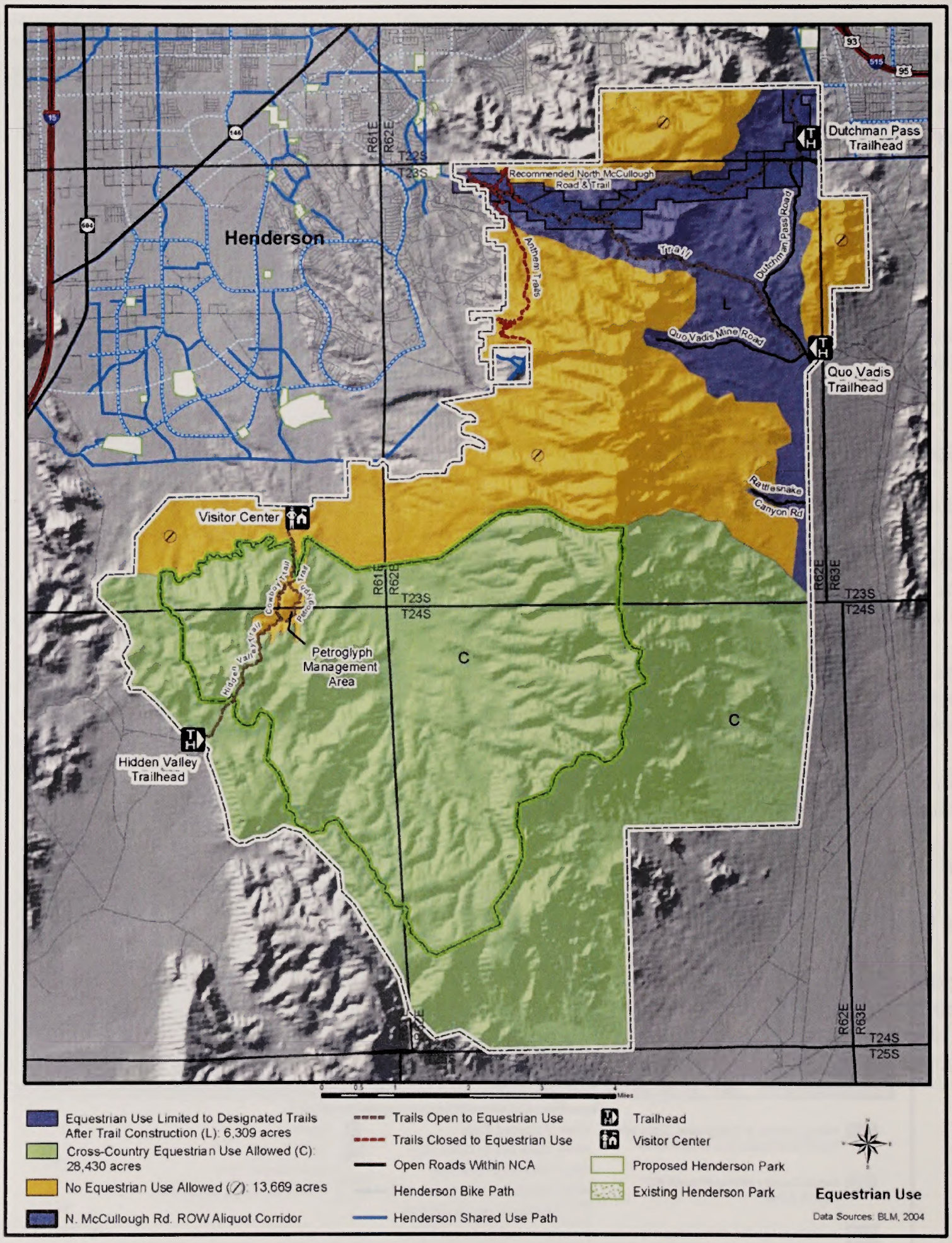
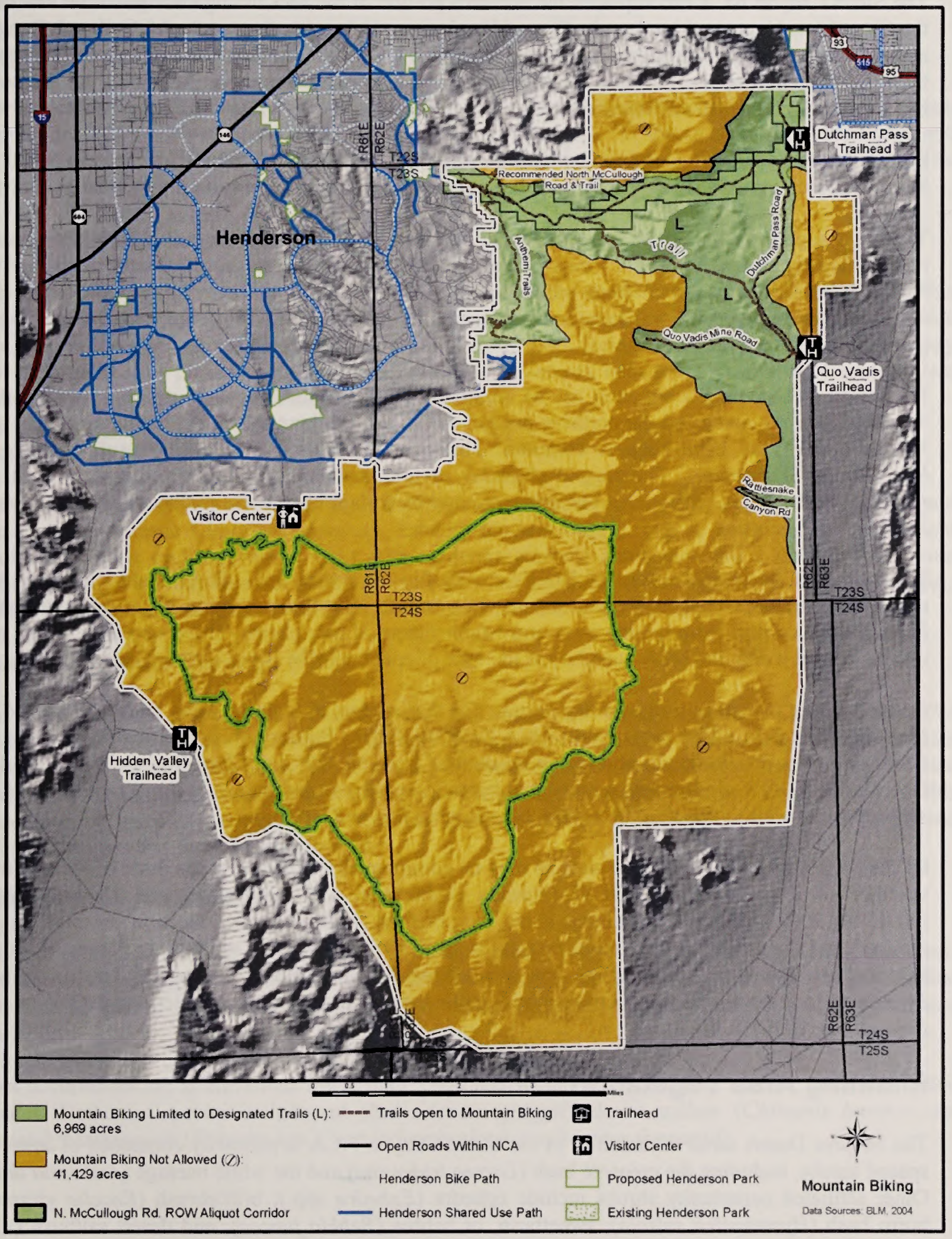


Figure L.6. Mountain Biking



IV. AFFECTED ENVIRONMENT

The Sloan Canyon NCA encompasses the northern portion of the McCullough Range. It lies southeast of the City of Las Vegas and borders the City of Henderson. Volcanoes formed the McCullough Range, and a long basalt spine dominates the topography within the NCA. The eastern slopes of the range are steeper than the western slopes. Elevations within in the NCA range from about 1,800 feet on the southern border to 5,000 feet at Black Mountain.

Archaeological evidence suggests that humans have used the NCA resources for the past 7,000 years. Numerous rock art exists in the NCA, and they are of cultural importance to native peoples.

The NCA supports a variety of wildlife, including desert bighorn sheep, mountain lions, Gila monsters, and the threatened desert tortoise. Two artificial wildlife water locations (guzzlers) were developed within the NCA through cooperative efforts of BLM, the NDOW, and private conservation groups interested in improving habitat for bighorn sheep and other wildlife species. NDOW anticipates maintaining these guzzlers for future wildlife use.

Recreation is becoming a common use of the North McCullough Range. As urban growth in the Las Vegas Valley has enveloped the northern portion of the NCA, hiking, mountain biking, and off-highway vehicle (OHV) use have become common. The southern portion of the NCA contains the North McCullough Wilderness. The rugged character of this southern area limits access and, as a result, receives relatively low visitation. The primary concern with public access is disturbance of the existing landscape and habitats.

Within the NCA, approximately 40 ROWs are on file for power lines, flood control facilities, access roads, and communication equipment in the project area. The Sloan Canyon NCA Act withdraws the NCA and Wilderness from mining entry and establishment of new claims. There were 11 existing mining claims located within the NCA boundary at the time of enactment.

Annually, NDOW issues limited entry permits for the hunting of bighorn sheep in the North and South McCullough Range, which includes the NCA (NDOW 2003). Bighorn sheep hunting licenses are issued based on population dynamics and recommendations from NDOW and Clark County Wildlife Advisory Board. The NDOW also permits recreational hunting for bobcats and mountain lions, rabbits, dove, quail, and coyote, as well as trapping for coyote, bobcat, gray fox, and kitfox.

Of the State's 54 native reptile species, 36 may be commercially collected in the State of Nevada through issuance of a permit from NDOW (Nevada Department of Conservation and Natural Resources [NDCNR] 2002). There are concerns about the potential impact of this collection on total population numbers and the potential for species integrity to be diminished as large reptiles are harvested; however, baseline population and distribution data are lacking for most reptile species, making it difficult to determine long-term effects of commercial collecting and unlimited reptile harvesting on reptile populations (NDCNR 2002).

Planning Area Vegetation

The Mojave Desert scrub community in the Sloan Canyon NCA is primarily composed of low, widely spaced shrubs, including the creosote bush (*Larrea tridentata*) and the white bursage (*Ambrosia dumosa*). Other affiliated community shrubs include ephedra (*Ephedra* spp.); brittlebrush (*Encelia virginensis*); burro bush (*Hymenoclea salsola*); sweetbush, or bebbia (*Bebbia juncea*); and desert saltbush (*Atriplex polycarpa*). Characteristic species associated with the Mojave Desert include Mojave yucca (*Yucca*

schidigera), teddybear cholla (*Opuntia bigelovii*), and hedgehog cacti (*Echinocereus* spp.). Short-lived annual and perennial wildflowers appear at the lower elevations in late March, April, and May, when prompted by winter rains.

Vegetation Associations

Four vegetation associations are represented within the Sloan Canyon NCA: (1) volcanic basalt slope associations, (2) moderate creosote (greater than 30 percent cover), (3) sparse creosote/bursage mix, and (4) desert wash associations (BLM 2004e). Vegetation association descriptions are listed below. The distribution of vegetation associations within the NCA is presented in Figure 3.10.

Volcanic Basalt Slope Association

The volcanic basalt slope association is found on the steeper north-facing slopes of the NCA. This association contains basalt rock outcrops, and the plant species composition is highly variable. Creosote is present in most of this vegetation association; however, north-facing slopes may lack creosote canopy cover. Shrub species present include creosote (*Larrea tridentata*), ephedra (*Ephedra spp.*), prickly pear (*Opuntia spp.*), and perennial and annual grasses and forbs.

Moderate Creosote

The moderate creosote association is dominated by creosote (greater than 30 percent canopy cover) and also contains bursage (*Ambrosia dumosa*), ephedra (*Ephedra spp.*), and in some areas a significant amount of Cholla cactus (*Opuntia spp.*). The moderate creosote association has a limited distribution within the NCA and may be associated with increased soil moisture availability. Saltbush (*Atriplex spp.*) and perennial and annual grasses and forbs are also associated with the moderate creosote association.

Sparse Creosote/Bursage Mix

The sparse creosote association is the most abundant association within the Sloan Canyon NCA. The sparse creosote vegetation association is an open sparse plant association dominated by creosote bush (*Larrea tridentata*). Ephedra (*Ephedra*), bursage (*Ambrosia dumosa*), and saltbush (*Atriplex spp.*) are also common shrub species in the sparse creosote association. The canopy cover of vegetation in this association is typically less than 30 percent, and desert pavement dominates some areas. Annual and perennial grasses and forbs are also present.

Desert Wash Associations

Desert washes within the Sloan Canyon NCA are ephemeral watercourses that are dry most of the year. The increased quantity of available water, even for brief periods, in desert washes supports vegetation that differs from that of adjoining plant associations in species composition, structure, and soil moisture availability.

Most occurrences are at elevations lower than 5,000 feet within sandy arroyos, washes, and subirrigated bajadas. Dominant species include cat claw (*Acacia greggii*), desert willow (*Chilopsis linearis ssp. arcuata*), Mormon tea (*Ephedra spp.*), and indigo bush (*Psorothamnus fremontii*).

V. STATUS OF FEDERALLY LISTED SPECIES

The NCA includes habitats composed of plant communities that support a wide variety of desert-associated animal species; however, it contains only one federally listed wildlife species—the desert tortoise (*Gopherus agassizii*).

Desert Tortoise

The desert tortoise (*Gopherus agassizii*) is a large, herbivorous reptile found in portions of the California, Arizona, Nevada, and Utah deserts. It also occurs in Sonora and Sinaloa, Mexico. In California and southern Nevada, the desert tortoise is found primarily within the creosote, shadscale, and Joshua tree vegetation community. The desert tortoise is also found in the Lower Colorado River subdivision of the Sonoran desert scrub vegetation community. Optimal species-range habitat has been characterized as Mojave Desert scrub, creosote bush scrub, and blackbrush communities in valleys and on bajadas and hills below 4,500 feet, where precipitation ranges from 2 to 8 inches, diversity of perennial plants is high, and production of ephemeral plants is high (Luckenback 1982, Turner and Brown 1982, Schamberger and Turner 1986, RECON 2000).

Soils should be friable enough to allow the tortoises to dig burrows and firm enough so that the burrows do not collapse. In southern Nevada and California, desert tortoises are typically associated with gravelly flats or sandy soils with some clay, and are occasionally found in windblown sand or in rocky terrain (Luckenback 1982). Desert tortoises have been found in California from below sea level to an elevation of 7,300 feet, but the most favorable habitat occurs at elevations of about 1,000 to 3,000 feet (Luckenbach 1982, Schamberger and Turner 1986). Within Clark County the preferred elevation range of the desert tortoise is below 4,500 feet (RECON 2000).

Desert tortoises are most active in southern Nevada during the spring and early summer in association with annual plant development. Activity increases again during the warm fall months and occasionally after summer rainstorms. Desert tortoises spend the remainder of the year in burrows, escaping the extreme conditions of the desert. Although they spend most of their lives in burrows or caves, the tortoises will become active in suitable weather at any time of the year; rainfall, particularly during the summer, often initiates activity. Young desert tortoises are more likely to be active in less suitable weather than are adults (Wilson 1999). Further information on the range, biology, and ecology of the desert tortoise can be found in Burge (1978), Burge and Bradley (1976), Hovik and Hardenbrook (1989), Luckenback (1982), Weinstein et al. (1987), and USFWS (1994).

The Mojave population of the desert tortoise includes those animals living north and west of the Colorado River in the Mojave Desert of California, Nevada, Arizona, and southwestern Utah, and in the Colorado Desert of California. On August 4, 1989, the USFWS published an emergency rule listing the Mojave population of the desert tortoise as endangered (54 *Federal Register* 32326). In its final rule, dated April 2, 1990, the USFWS determined the Mojave population of the desert tortoise to be threatened (55 *Federal Register* 12178). Critical habitat for the desert tortoise in portions of California, Nevada, Arizona, and Utah is identified in a final rule published February 8, 1994 (59 *Federal Register* 5820). Following the recommendations of the Desert Tortoise Recovery Team, the final rule designating critical habitat established six recovery units over the range of the Mojave population of the desert tortoise. The six recovery units are—

- Northeastern Mojave
- Eastern Mojave
- Northern Colorado

- Eastern Colorado
- Upper Virgin River
- Western Mojave.

Within the recovery units, the USFWS defined at least one critical habitat unit patterned after the Desert Wildlife Management Area (DWMA) concept recommended by the recovery team. A total of 14 DWMAs have been delineated within the six recovery units. A final recovery plan for the desert tortoise was published by the USFWS in June 1994.

The desert tortoise was listed in response to loss and degradation of habitat caused by numerous human activities, including urbanization, agricultural development, military training, recreational use, mining, and livestock grazing. The loss of individual desert tortoises to increased predation by common ravens (*Corvus corax*), collection by humans for pets or consumption, collisions with vehicles on paved and unpaved roads, and mortality resulting from diseases also contributed to the USFWS's listing of this species.

The 1994 Recovery Plan outlines the basis and key strategy for recovery and delisting of the desert tortoise (USFWS 1994). The plan divides the range of the desert tortoise into six distinct population segments or recovery units and recommends establishment of 14 DWMAs throughout the recovery units. Within each DWMA, the recovery plan recommends implementation of reserve-level protection of desert tortoise populations and habitat, while maintaining and protecting other sensitive species and ecosystem functions. As part of the actions needed to accomplish recovery, land management within all DWMAs should restrict human activities that negatively affect desert tortoises (USFWS 1994).

The Sloan Canyon NCA, located within the Northeastern Mojave Recovery Unit, does not lie within any of the DWMAs. The Northeastern Mojave Recovery Unit occurs primarily in Nevada but also extends into California along the Ivanpah Valley and into extreme southwestern Utah and northwestern Arizona. Vegetation within the Northeastern Mojave Recovery Unit is characterized by creosote bush scrub, big galleta-scrub steppe, desert needlegrass scrub-steppe, and blackbrush scrub in the higher elevations.

Within the recovery unit, the topography is varied, ranging from flats to valleys, alluvial fans, washes, and rocky slopes. Much of the area is characterized as basin and range at elevations from 2,500 to 12,000 feet, with primary desert tortoise habitat located below 4,500 feet. Desert tortoises in the Northeastern Mojave Recovery Unit are at their northernmost distribution and are typically found at low densities of 10 to 20 adults per square mile.

Critical habitat is designated by the USFWS to identify the key biological and physical requirements of the species and key areas for recovery, and focuses conservation actions in those areas. Critical habitat is composed of specific geographic areas that contain the biological and physical attributes, such as space, food, water, nutrition, cover, and shelter, essential to the species' conservation within those areas. These features, known as constituent elements, are sufficient space to support viable populations within each of the six recovery units and to provide for movement, dispersal, and gene flow; sufficient quality and quantity of forage species and the proper soil conditions to provide for the growth of these species; suitable substrates for burrowing, nesting, and overwintering; burrows, caliche caves, and other shelter sites; sufficient vegetation for shelter from temperature extremes and predators; and habitat protected from disturbance and human-caused mortality. None of the project area includes identified desert tortoise critical habitat.

Threats to the Desert Tortoise

The Sloan Canyon NCA lies within Clark County, Nevada. Known and potential locations of desert tortoise habitat within the county are identified in the *Clark County Multiple Species Habitat Conservation Plan and Environmental Impact Statement* (Clark County 2000). This document identified threats to the desert tortoise as being either at an *ecosystem level* or *species specific*. Ecosystem-level threats in Clark County include competition for food by other herbivores such as cattle and horses; habitat degradation by livestock grazing and trampling; habitat degradation and wildlife displacement from extraction of minerals; reduction of wildlife populations through road mortality; habitat modification and degradation and wildlife mortality from competitive OHV races; habitat modification and degradation and wildlife mortality from noncompetitive, noncommercial OHV activities, including use of wash habitat; habitat degradation resulting from urban and rural development; habitat fragmentation by urban/rural development; habitat fragmentation by roads and trails; provision of perch sites for ravens; and raven predation of young. Species-specific threats include upper respiratory tract disease, possibly caused by release of captive tortoises, and poaching, illegal collection, or killing of flora and fauna.

Plant Species of Concern

Three Nevada State Sensitive and BLM Special Status Plant Species are located within the Sloan Canyon NCA: the rosy two-tone beardtongue *(Penstemon bicolor* ssp. *roseus),* the white-margined penstemon *(Penstemon albomarginatus)*, and the Blue Diamond cholla (*Opuntia whipplei* var. *multigeniculata*). These species have been identified to occur within or adjacent to the Sloan Canyon NCA (Bostick 1973; Marrs-Smith, personal communication 2004). The Blue Diamond cholla is also a USFWS Candidate Species for listing on the USFWS endangered species list (Table L.1).

Table L.1. Sensitive Plant Species within the Sloan Canyon NCA

Common Name	Scientific Name	Characteristics Federal and State of Nevada Status
Blue Diamond cholla	*Opuntia whipplei* var. *multigeniculata*	Restricted to rocky hillslopes, occurring mostly on north-facing slopes and exposed ridges. **Status:** Federal Candidate for Listing NV State Sensitive Species
Rosy two-tone beardtongue	*Penstemon bicolor* ssp. *roseus*	Occurs on rocky calcareous, granitic, or volcanic soils in washes, roadsides, or scree at outcrop bases, in rock crevices, or in similar places receiving enhanced runoff, in the creosote-bursage, blackbrush, and mixed-shrub zones. **Status:** Federal Species of Concern NV State Sensitive Species
White-margined beardtongue	*Penstemon Albomarginatus*	Occurs on sandy deposits on the leeward side of dry lakebeds between a 1,500 and a 3,600 foot elevation in the wash bottoms or outwash canyons, and occasionally on slopes above them. **Status:** Federal Species of Concern NV State Sensitive Species

Wildlife Species of Concern

Although only one ecosystem type, Mojave Desert scrub, is represented in the NCA, it supports a variety of wildlife species. The actual number of wildlife species occurring within the Sloan Canyon NCA is unknown; however, vertebrate wildlife species found within the NCA's borders represent three major classes: reptiles, birds, and mammals. Because there are no natural perennial water sources, no known

fish or mollusks species occur. One amphibian species, the red spotted toad (*Bufo punctatus*), can be found in temporary pools near the wildlife water development (guzzler) (Hardenbrook, personal communication 2005).

The primary natural factors that influence wildlife distribution and population numbers are water availability, vegetation, topography, and weather patterns. Water supplies, both above and below ground, are limited within the Sloan Canyon NCA, with springs and seeps serving as areas of habitat concentrations. The NCA contains small caves in igneous rocks that serve as habitat or escape cover for a variety of species. In addition to natural factors in the NCA, human presence and activities such as recreation use affect wildlife distribution and life history patterns.

Mammals. Small mammals expected to occur within the Sloan Canyon NCA include the black-tailed jackrabbit (*Lepus californicus*), desert cottontail (*Sylvilagus audubonii*), desert kangaroo rat (*Dipldomys deserti*), rock squirrel (*Citellus variegates*), and antelope ground squirrel (*Ammuspermophhilus leucurus*). Bat species, including the big free-tailed bat (*Tadarida macrotis*) and the Mexican free-tailed bat (*Tadarida brasiliensis*), are known to occur in small caves within the NCA (Nevada Bat Working Group 2002b).

Large mammal species include the coyote (*Canis latrans*), kit fox (*Vulpes macrotis*), desert bighorn sheep (*Ovis canadensis nelsoni*), mule deer (*Odocileus hemionus hemionus*), bobcat (*Lynx rufus*), and mountain lion (*Felis concolor*).

Birds. Bird species expected to occur within the NCA include the black-throated sparrow (*Amphispiza bilineata*), cactus wren (*Campylorhynchus bruneicaphillus*), black-chinned hummingbird (*Archilochus alexandri*), Anna's hummingbird (*Calypte anna*), broad-tailed hummingbird (*Selasphorus platycercus*), Gambel's quail (*Callipepla gamebelii*), mourning dove (*Zenaida macroura*), greater roadrunner (*Geococcyx californianus*), phainopepla (*Phainopeopla nitens*), loggerhead shrike (*Lanius ludovicianus*), red-tailed hawk (*Buteo jamaicensis*), and Swainson's hawk (*Buteo swainsoni*).

Reptiles. Reptiles are the most common and diverse species within the Sloan Canyon NCA. Lizards are expected to occur within the NCA include the desert iguana (*Dipsosaurus dorsalis*), chuckwalla (*Sauromalus obesus*), western banded gecko (*Coleonyx variegates*), collared lizard (Crotaphytus *collarus*), side-blotched lizard (*Uta stansburiana*), Gila monster (*Heloderma suspectum*), desert horned lizard (*Phyrnosoma platyrhinos*), long-nosed leopard lizard (*Gambelia wislizenii*), and long-tailed brush lizard (*Urosaurus graciosus*). Snakes expected to occur within the NCA include the coachwhip (*Masticophis flagellum*), Mojave rattlesnake (*Crotalus scutulatus*), sidewinder (*Crotalus cerastes*), speckled rattlesnake (*Crotolus muertensis*), western patch-nosed snake (*Salvadora hexalepis*), long-nosed snake (*Rhinocheilus lecontei*), and spotted leaf-nosed snake (*Phyllorhynchus decrutatus*). The desert tortoise (*Gopherus agassizi*) is the only tortoise located within the NCA.

VI. Issues of Concern

Within the Sloan Canyon NCA RMP, there are several issues of concern that could affect the management of the landscape and subsequently the species.

Wilderness

Clark County Act, Title II ("Wilderness Areas") designated the North McCullough Wilderness on November 6, 2002. This 14,763-acre wilderness is located entirely within the southwest portion of the

NCA in the northern half of the McCullough Range. Wilderness is a unique component of the National Wilderness Preservation System because it is less than 15 miles south of Las Vegas.

The North McCullough Wilderness is roughly triangular in shape and spans approximately 6 miles at both its longest and widest points. The eastern boundary follows the crest of the escarpment whose base forms the eastern edge of the NCA. The volcanic features that rim Hidden Valley define the western boundary, and the northern boundary crosses Sutor Hills, Sloan Canyon, and a large basin that drains the western portion of the escarpment.

The Wilderness contains the Sloan Canyon Petroglyph Site and other prominent features such as Sutor and Hanna Peaks. Currently, the main access to the Wilderness is limited to several vehicle routes approaching from the northwest in the Sloan Canyon area and from the southwest from Hidden Valley. These routes access Sloan Canyon and the wash leading to the Sloan Canyon Petroglyph Site.

Despite its proximity to a largely populated urban area, the portion of the Wilderness outside the Petroglyph Management Area (Figure L.7) possesses good solitude opportunities due to the historically low levels of visitor use; lack of trails and other developments; as well as topography that provide some natural screening from the adjacent urban area or other wilderness users. A lesser degree of solitude is available within the Petroglyph Management Area as this area has the heaviest visitation within the Wilderness. The primeval character of the entire Wilderness is essentially intact except for the occurrence of some introduced plants, primarily annual grasses.

Recreation Management

Recreational use in the Sloan Canyon NCA under the preferred alternative would include (1) hiking, (2) equestrian use, (3) mountain biking, (4) camping, (5) rock climbing, and (6) dog exercise. Specific actions for each include—

Hiking. Cross-country hiking would be allowed in the NCA, including in the Wilderness. In certain designated areas, it would be allowed until trails are established and constructed, after which some of the area might be restricted to hiking on trails (Figure L.4). Five new trails are proposed in the RMP—

- Petroglyph Trail
- Cowboy Trail
- Hidden Valley Trail
- Anthem Trail System
- North McCullough Trail
- Unnamed Trail (east-west power line road)

Additional trails would be added to the system as need arose, provided that the design and construction of a new trail would not have substantial impacts on sensitive cultural, and natural resources, and/or wilderness character. Site-specific resource conditions would be considered in selecting trail locations and designating trail features.

Equestrian Use. In designated areas, cross-country equestrian use would be allowed until trails are established and constructed, after which equestrian use might be restricted to designated trails. In some other areas, cross-country use would be allowed. Equestrian use would be prohibited in the remainder of the NCA (Figure L.5). Horse feed and hay would have to be certified to be weed-free to prevent the spread of noxious and invasive weeds. Watering of horses and pack animals would be prohibited at

Figure L.7. Petroglyph Management Area

wildlife water developments, and horse and pack animal waste would have to be removed in trailhead areas.

Mountain Biking. Mountain biking would be allowed on designated roads and trails (Figure L.6).

Camping/Campfires. Primitive, dispersed camping would be allowed in designated areas of the NCA (Figure L.8). Campfires would be allowed only at camping sites, using fire pans or fire blankets, and all fuels would have to be packed in and packed out. No natural fuels in the NCA could be used for campfires. BLM encourages the use of portable stoves for preparing meals.

Rock Climbing. Bouldering and traditional rock climbing (no permanent anchors) would be allowed throughout the NCA, including the Wilderness, except at the Petroglyph Management Area and its northern access and in identified sensitive resource areas.

Dogs. Dogs would be allowed on leash in designated areas, but prohibited from the remainder of the NCA (see Figure L.9). Dog feces would have to be immediately picked up and packed out.

Special Recreation Permits. SRPS would be issued in the NCA, but no competitive or vending SRPs would be issued for the Wilderness. Commercial SRPs would be issued on a case-by-case basis for guides and outfitters. Organized groups would be required to obtain an SRP on a case-by-case basis for group activities outside the Petroglyph Management Area.

Geocaching, recreational target shooting, rockhounding, and OHV use would not be allowed in the Sloan Canyon NCA.

Hunting. Hunting is prohibited in the Petroglyph Management Area and its northern access, but is allowed throughout the remainder of the NCA in accordance with Nevada hunting regulations. Hunting dogs are allowed off-leash in hunting areas.

Transportation

The North McCullough Road, when constructed, as well as Dutchman Pass Road, Quo Vadis Mine Road, and Rattlesnake Canyon Road, would be open for registered vehicles (Figure L.10). All other roads and routes would be closed to the public.

Grazing Management

The Hidden Valley Allotment is the only allotment open to livestock grazing within the Sloan Canyon NCA. Most of the Hidden Valley Allotment is outside the NCA and therefore is not affected by the proposed actions. A portion of the allotment extends north into the NCA and the North McCullough Wilderness. The *Proposed Las Vegas Resource Management Plan and Final Environmental Impact Statement* (BLM 1998) addresses the baseline grazing conditions within the NCA.

Grazing on the Hidden Valley Allotment is ephemeral, based on climatic conditions and grass production. The permittee can graze the allotment if the BLM Las Vegas Field Office determines that forage conditions are suitable for livestock grazing. The permittee does not forfeit the ability to apply if no permit application is made or if allotted forage is not used. Domestic livestock use is limited to cattle. Over the past 13 years, the number of cattle allowed to graze on the allotment has ranged from 40 to 100 animals.

Figure L.8. Camping

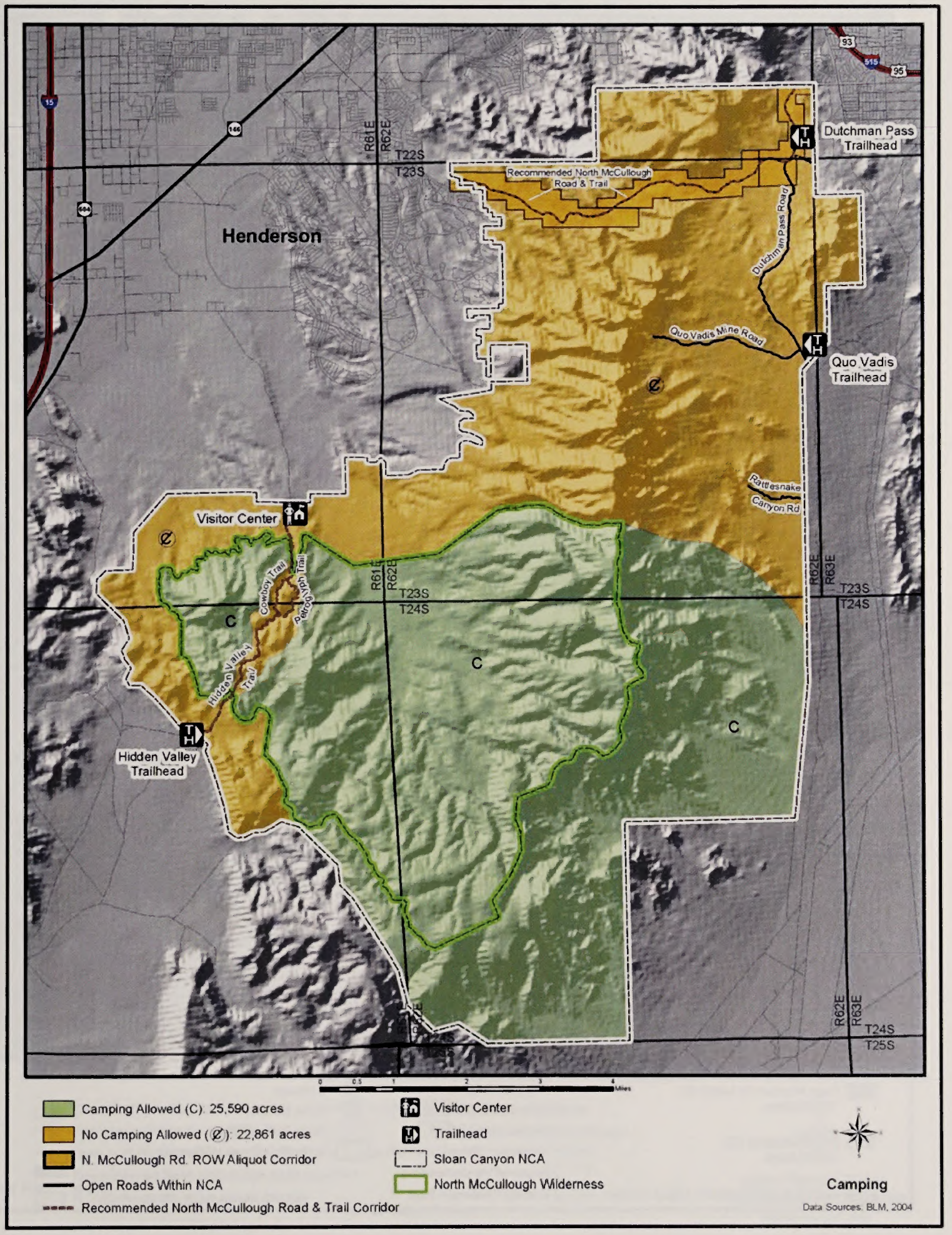


Figure L.9. Dogs

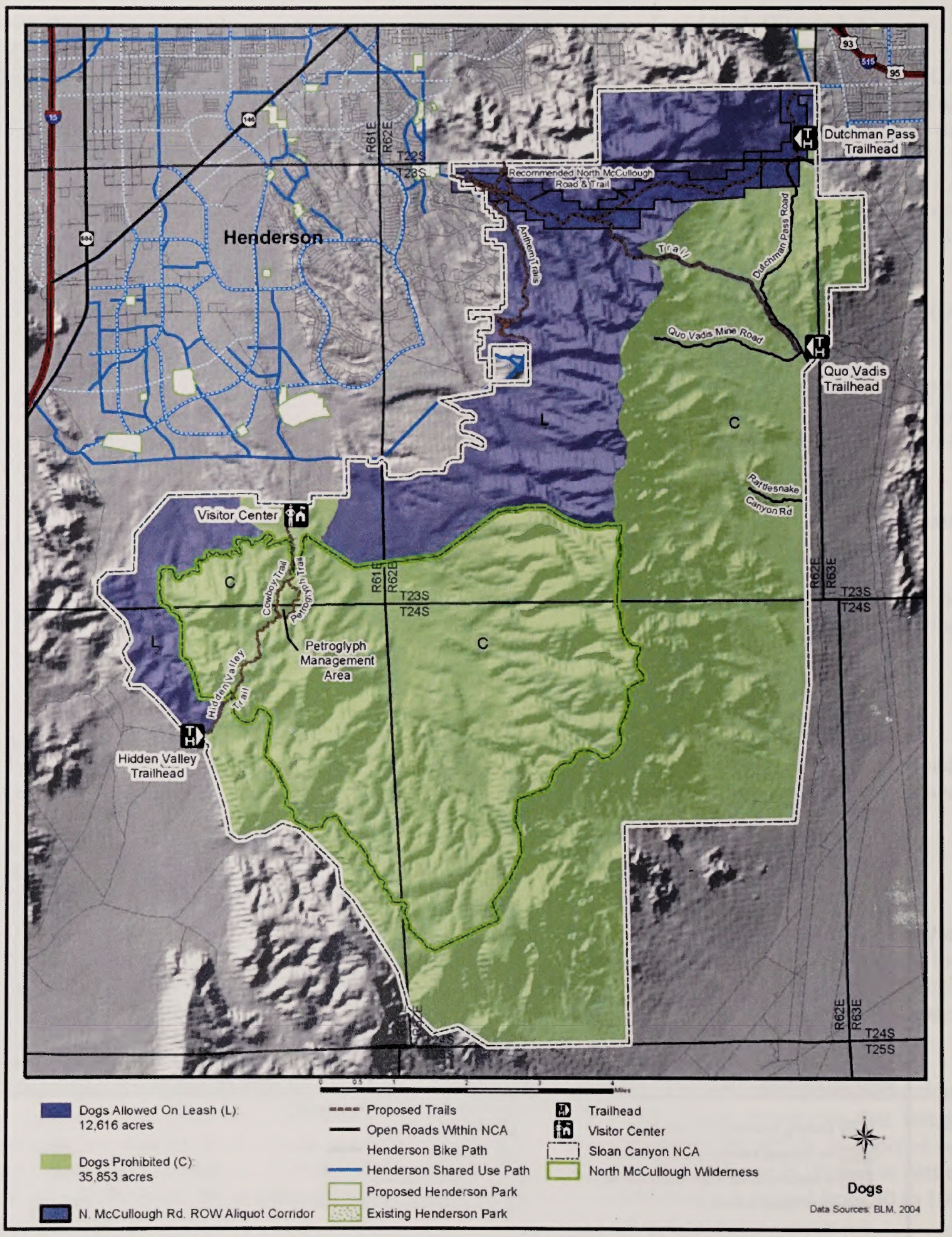
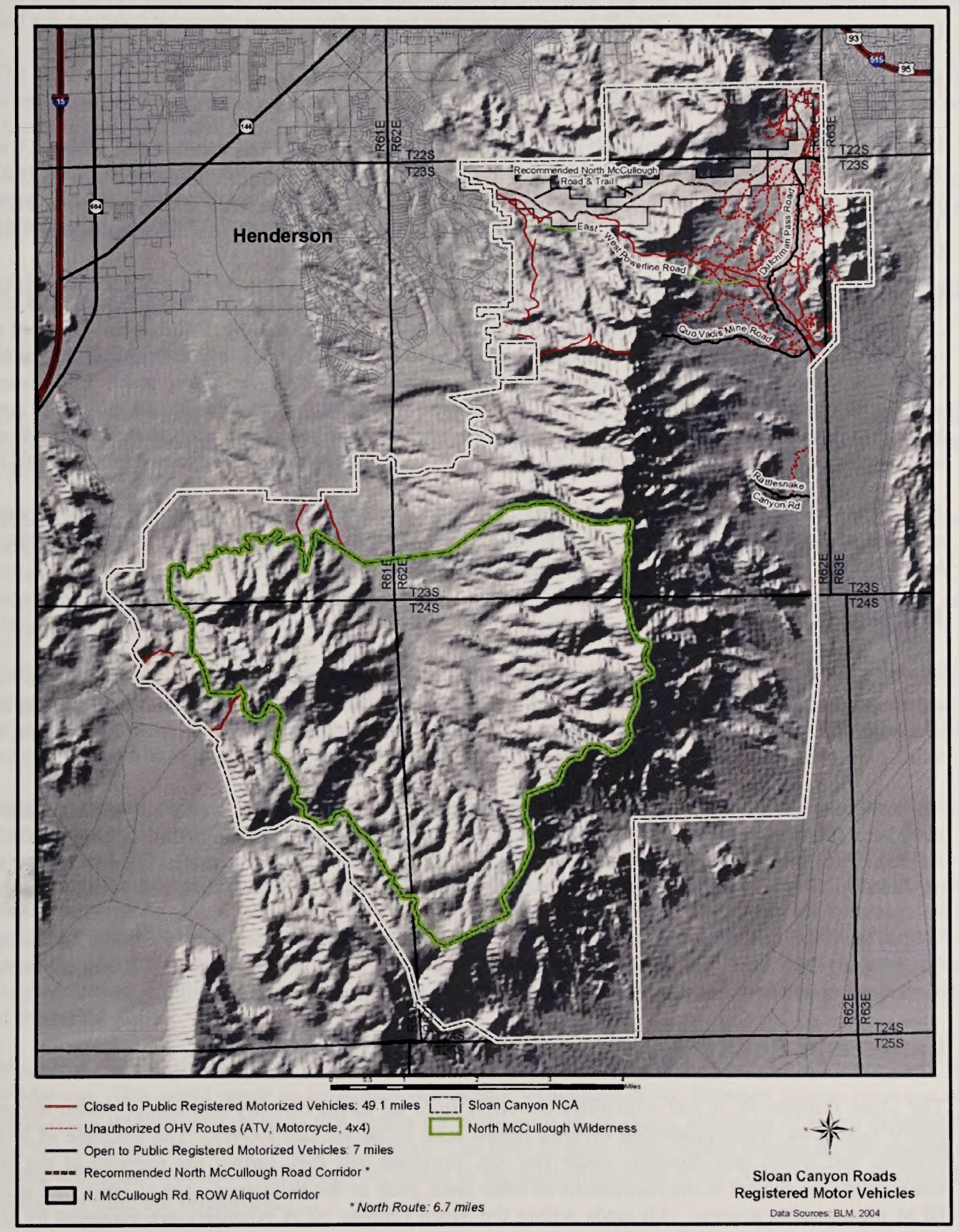


Figure L.10. Sloan Canyon Roads Registered Motor Vehicles



Grazing on the Hidden Valley Allotment is supported with hauled water. Water haul locations are placed to avoid wildlife habitat and target grazing use. No water haul locations are currently located within the NCA; however, there is one adjacent to the NCA in an area of good grass production. Roads that access water haul locations support grazing, and several roads serve the allotment to the south of the NCA. Increased grazing could result in increased desertification of the NCA.

Noxious and Invasive Weeds

BLM has developed and implemented a program to address management of noxious and invasive weeds. The spread of noxious and invasive weed species contributes to the loss of habitat productivity, reduced water quality and quantity, reduced structural and species diversity, and loss of wildlife-specific habitats. To minimize the potential for non-native seeds' being brought into the area, NDOW has issued guidance to hunters regarding the use of animal feed (NDOW 2003).

Most, if not all, non-native plant infestations begin as small outbreaks in disturbed areas, such as utility corridors, trails, range improvement footprints, roadsides, ROWs, and mining disturbances. Seeds of non-native plants can also be transported into the area in feed for pack animals, by recreational use, or in re-vegetation grass mixtures or can be blown in from distant sources. As non-native plants find disturbed areas with no natural competition, they quickly spread, overtaking native vegetation and reducing the biological diversity and ecologic viability of the ecosystem. Invasive species, such as red brome (*Bromus madritensis*), are widespread throughout the NCA and could alter wildland fire cycles (Simonin 2001).

Although a survey has not been completed, an immediate concern is the potential noxious species invasion of Sahara mustard (*Brassica tournifortii*), which utilizes sandy soils at lower elevations, and tamarisk (*Tarmarix* spp.), which could occupy wash bottoms.

Mineral Development

The Sloan Canyon NCA Act specifically addresses mining claims and states that, except for "valid existing rights, all public land ... is withdrawn from ... location, entry, and patent under the mining laws; and operation of the mineral leasing, mineral materials and geothermal leasing laws." Therefore, only valid, existing mineral claims are recognized for this planning purpose.

No economic metallic minerals, uranium, thorium, or economically viable nonmetallic mineral deposits have been found within the NCA (Great Basin GEM 1983). Inside the eastern boundary of the NCA, the Railroad Pass District produced a limited amount of gold from the Quo Vadis mine. Gold and silver were produced in 1935 and 1936 from quartz veinlets in sheared andesite (Great Basin GEM 1983).

Within the NCA boundary, there are 11 active mining claims. These claims are located in Township 23 South, Range 61 East and are within or overlap the NCA and portions of the Wilderness. Eighteen abandoned mines have been identified within the NCA, with 15 secured by backfilling.

Lands and Realty

The Sloan Canyon NCA Act withdraws the NCA from all forms of entry and appropriation under the public land laws, while protecting existing rights, such as power line ROWs. The issuance of ROWs, permits, and leases may continue under the Act, provided that they further the purpose of the NCA; issuance is also subject to the restrictions of other laws, such as the Wilderness Act of 1964, and existing BLM management actions. All lands within the Sloan Canyon NCA boundary are managed by BLM; there are no private inholdings.

Based on BLM records, 44 existing ROWs were on file when the NCA was designated (BLM 2004c). Several pending applications were in process when the Act was passed and are now being completed. The ROWs primarily cover power lines, flood control facilities, access roads, and communication sites and are confined primarily to the northern and eastern portions of the NCA.

The City of Henderson holds ROWs for two roads and two trails. The ROW for the existing road is for access to a flood control facility, and two new trail ROWs were granted as part of the Sloan Canyon Act (Anthem Trail and North McCullough Road and Trail).

Outside the Wilderness, applications for new linear or site-type ROWs or any amendments to existing ROWs would be considered on a case-by-case basis within the NCA, if the action furthers the purpose of the NCA in accordance with Section 602 of the Sloan Canyon NCA Act.

VII. Effects of the Preferred Alternative on Listed Species

Direct Effects

The plant communities that are present within the Sloan Canyon NCA provide habitat for the federally listed threatened desert tortoise. Desert tortoises are known to occur throughout the Nevada and southern California deserts.

Recreation. Designation of an additional 17,816 acres as a semiprimitive nonmotorized Management Emphasis Area would result in increased preservation of wildlife habitat characteristics in the NCA because of avoidance of facility construction and prohibition of motorized vehicles. The entire NCA would be closed to OHV use, which would eliminate mortality and noise harassment to animals and eliminate loss of habitat.

Focusing hiking to designated and constructed trails in areas bordering the northern portions of the NCA where there is increased population would reduce impacts on wildlife by concentrating human presence, as well as reducing the likelihood that wildlife would become habituated to humans in the area. BLM would locate trails to avoid sensitive wildlife habitat and visitor impacts

In the northern portions of the NCA, equestrian use would be limited to designated trails, once constructed, which would reduce effects on wildlife by concentrating human use.

Mountain biking would be restricted to designated multiple-use trails and vehicle roads. Primitive and dispersed camping would be restricted to the southern portions of the NCA, with specific actions taken to limit vegetation trampling and human disturbance. Rock climbing and bouldering would be limited to areas outside the sensitive resource areas in the NCA, with avoidance of known raptor nesting areas. Dogs would be required to be on a leash in the designated areas and would be prohibited in the remainder of the NCA.

Wilderness Management. The Proposed Action would allow hiking and equestrian use throughout the Wilderness. This could result in temporary disturbance of wildlife from dispersed human presence and could result in decreased reproductive fitness for breeding bighorn sheep, alteration of raptor distribution and breeding, and alteration of wildlife habitat. The level of disturbance would depend on the amount of visitor use in the area and would likely be higher in the northern portion of the NCA. All dogs would be prohibited from the Wilderness.

Transportation. Registered motorized vehicles would be allowed only on the North McCullough Road, if constructed, and the Dutchman Pass, Quo Vadis Mine, and Rattlesnake Canyon Roads. This would result in long-term reduction of localized noise and disturbance to wildlife from traffic.

Facilities Development. Developed access points to the NCA would include the northern entrance of Sloan Canyon, Hidden Valley Trailhead, Dutchman Pass Trailhead, and Quo Vadis Trailhead. Specific disturbances for each of these facilities would include—

- Northern Entrance of Sloan Canyon. A visitor center would be constructed near the NCA boundary at the north entrance to Sloan Canyon. The total disturbed area is estimated to be 20 acres, including a parking area.
- Hidden Valley Trailhead. The total disturbed area is estimated to be 10,500 square feet and would include a surfaced lot, an interpretative kiosk, and a vault toilet.
- Dutchman Pass Trailhead. The total disturbed area is estimated to be 22,500 square feet and would include a surfaced lot, an equestrian staging area, an interpretive kiosk, and a vault toilet. This trailhead would be constructed near the northeastern boundary of the NCA at Dutchman Pass.
- Quo Vadis Trailhead. Total disturbed area is estimated to be ½ acre and would include a surfaced parking lot, an interpretive kiosk, and a vault toilet.

These developments would result in permanent loss of creosote/grassland habitat. No known areas of sensitive plant or animal habitats would be directly affected by the planned development actions. Increased human use at these areas would result in increased disturbance to animals and trampling of soil and vegetation.

Vegetation and Wildlife Management. BLM would manage vegetation to promote native plant communities and restore plant productivity of disturbed areas through rehabilitation and revegetation, which would provide for the long-term improvement of wildlife habitat.

Casual and commercial collection of reptiles would be prohibited within the Sloan Canyon NCA. This would result in reduction in direct impacts on reptiles and reduced surface disturbance associated with collection activities.

NDOW would continue to manage the hunting programs for the desert bighorn sheep and to maintain the water guzzlers in the NCA.

Indirect Effects

Indirect impacts could come about through habitat degradation from soil compaction and loss of vegetation caused by licensed vehicles' straying off of designated roads (i.e., straying outside the boundaries of existing paved and dirt roads). On most of the Sloan Canyon NCA, activities would be limited to existing roads. The width of an individual route segment would be smaller than the existing road width (road berms are not included as part of the road width or surface area), making it unlikely that impacts would occur within the boundaries of existing paved and dirt roads. All surface disturbances would be expected to be confined to existing ROWs and access areas.

Cumulative Effects

Cumulative effects would include the effects of future State, tribal, local, or private actions that are reasonably certain to occur in the action area considered in this Biological Assessment. Future federal actions that are unrelated to the Proposed Action are not considered in this section because they require separate consultation pursuant to section 7(a)(2) of the ESA. Although single actions are insignificant by themselves, impacts could accumulate over time from various actions. That combination of impacts could negatively or positively affect lands and resources.

The following were identified as the primary factors affecting Special Status Species within the Sloan Canyon NCA:

1. **Changes in Ecosystem Structure and Function**

   Ecosystem structure and function have been changed and would continue to be changed in the project area by a variety of human activities. Planned and unplanned road development has affected drainage patterns and dispersal corridors, resulting in changes to species movement patterns and sustainability of ecosystem processes.

   Noxious weeds spread by vehicles, people, and livestock would populate disturbed areas and allow establishment of invasive plant species in areas previously not infested.

2. **Changes in Habitat (Loss, Fragmentation, Degradation)**

   There are several activities within the project area that could change species habitat. They include, but are not limited to, road development, livestock management, tourism, recreation, and vehicle use. These activities result in the direct removal of habitat or a reduction in use of remaining habitat due to the initial or ongoing disturbance. Habitat fragmentation and disturbance often result in impediments in habitat linkages and dispersal corridors.

3. **Human-Induced Mortality**

   An increasing human population, including increases in travel on highways, roads, and trails and increased access to Special Status Species habitat, elevates the risk of death to desert tortoises due to vehicle collisions, collection, poaching, and other interactions with humans. Deaths from relocation of desert tortoises and other species could also contribute to mortality.

   Changes in the Mojave Desert ecosystem, changes in habitat, and human-induced mortality would likely increase and expand as the population of the Las Vegas area continues to grow. These factors are, to varying degrees, affecting the desert tortoise and other Special Status Plant and Animal Species and their habitats. Considering past, present, and reasonably foreseeable trends for activities in the region, it is likely that there would be insignificant cumulative impacts on listed species from implementation of the Sloan Canyon RMP.

   Implementation of the Sloan Canyon RMP with the outlined conservation measures should reduce potential impacts on insignificant to discountable levels. Loss of individual species of plants and animals is expected to be minimal under the Sloan Canyon RMP because (1) Special Status Species considerations were integrated into the program plan of action and (2) conservation measures have been identified to help reduce risk and potential losses.

VIII. DETERMINATION

Take, in the form of desert tortoise injury or mortality, could occur because of collisions with vehicles. The likelihood of this occurring within the Sloan Canyon NCA would be would be low because impacts from vehicles would be confined to the narrow width of the route boundaries of the roads available for access.

The determination made is *May Affect, Likely to Adversely Affect* the desert tortoise based on designating roads and the resulting increased access to desert tortoise habitats within the Sloan Canyon NCA. Given the low population density of the Mojave Desert tortoise population within the Sloan Canyon NCA, this population cannot handle loss of population. Reduction of desert tortoise numbers would lead to significant loss of population viability if take were to occur. Implementing the proposed conservation actions could mitigate these actions.

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ACRONYMS

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ACEC	Area of Critical Environmental Concern
AIRFA	American Indian Religious Freedom Act
AMR	Appropriate Management Response
BEA	Bureau of Economic Analysis
BLM	Bureau of Land Management
CCDCP	Clark County Department of Comprehensive Planning
CDFG	California Department of Fish and Game
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CL_2	Chlorine
CO	Carbon Monoxide
DAQEM	Department of Air Quality and Environmental Management
DOI	Department of the Interior
EA	Environmental Assessment
EIS	Environmental Impact Statement
EO	Executive Order
EPA	Environmental Protection Agency
ESA	Endangered Species Act
FEIS	Final Environmental Impact Statement
F.I.R.E	Fire, Insurance, and Real Estate
FLPMA	Federal Land Policy and Management Act
GIS	Geographic Information Systems
HAP	Hazardous Air Pollutants
H_2S	Hydrogen Sulfide
LAC	Limits of Acceptable Change
MBTA	Migratory Bird Treaty Act
MEA	Management Emphasis Area
MOU	Memorandum of Understanding
MSHCP	Multiple Species Habitat Conservation Plan
NAAQS	National Ambient Air Quality Standard
NAICS	North American Industry Classification System
NCA	National Conservation Area
NDCNR	Nevada Department of Conservation and Natural Resources
NDOW	Nevada Department of Wildlife
NNHP	Nevada Natural Heritage Program
NO	Nitrogen Oxide
NPS	National Park Service
NRCS	National Resource Conservation Service
NRHP	National Register of Historic Places
NWS	National Weather Service
O_3	Ozone
OHV	Off-Highway Vehicle
Pb	Lead
PM	Particulate Matter
PNC	Preferred Natural Condition
PL	Public Law
PPM	Parts Per Million
PRMP	Proposed Resource Management Plan

RAC	Resource Advisory Council
RMP	Resource Management Plan
ROD	Record of Decision
ROS	Recreation Opportunity Spectrum
ROW	Right-of-Way
SEAT	Single Engine Air Tanker
SHPO	State Historic Preservation Office
SIC	Standard Industry Classification
SIP	State Implementation Plan
SMA	Special Management Areas
SNPLMA	Southern Nevada Public Lands Management Act
SO_2	Sulfur Dioxide
SRP	Special Recreation Permit
U.S.C.	United States Code
USDA	United States Department of Agriculture
USFS	United States Forest Service
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
VOC	Volatile Organic Compounds
VRI	Visual Resource Inventory
VRM	Visual Resource Management
WMP	Wilderness Management Plan
WSA	Wilderness Study Area
WUI	Wildland Urban Interface

GLOSSARY

GLOSSARY

AIR QUALITY. The cleanliness of air as measured by the levels of pollutants relative to standards and guideline levels established to protect human health and welfare.

ALIQUOT PARTS. "Aliquot Parts" means one hundred sixty (160) acre, eighty (80) acre, forty (40) acre and ten (10) acre units, or other regular subdivisions of a section, which are quarter divisions of a section of land, excluding government lots and tracts, as set forth in the current manual of instructions for the survey of the public lands of the United States.

ALLOTMENT. An area of land where operators graze their livestock. It generally consists of public lands but may include parcels of private or state-owned lands. The number of livestock and period of use are stipulated for each allotment.

AMBIENT AIR QUALITY STANDARDS. Standards established on a State or federal level that define the limits of airborne concentrations of designated criteria pollutants (nitrogen oxide, sulfur oxide, carbon monoxide, particulate matter with aerodynamic diameters less than 10 microns [PM_{10}], ozone, and lead) to protect public health with a margin of safety (primary standards) and to protect public welfare, including plant and animal life, visibility, and materials (secondary standards).

APPROPRIATE MANAGEMENT RESPONSE (AMR). Specific actions taken in response to a wildland fire to implement protection and fire use objectives. Category A – private lands, BLM facilities and other areas with values where fire would not be desired. Category B – areas where a variety of appropriate fire suppression techniques would be applied to meet the resource objectives specified in the Resource Management Plan (RMP) and other site specific activity plans.

AREA OF CRITICAL ENVIRONMENTAL CONCERN (ACEC). An area established through the planning process as provided in Federal Land Policy and Management Act (FLPMA) where special management attention is required (when such areas are developed or used or where no development is required) to protect and prevent irreparable damage to important historic, cultural, or scenic values; or to fish and wildlife resources or other natural systems or processes; or to protect life and afford safety from natural hazards.

AVOIDANCE AREAS. Areas with sensitive resource values where rights-of-way and Section 302 permits, leases, and easements would be strongly discouraged. Authorizations made in avoidance areas would have to be compatible with the purpose for which the area was designated and not otherwise be feasible on lands outside the avoidance area.

BASIN. A depressed area having no surface outlet (topographic basin); a physiographic feature or subsurface structure that is capable of collecting, storing, or discharging water by reason of its shape and the characteristics of its confining material (water); a depression in the earth's surface, the lowest part often filled by a lake or pond (lake basin); a river or canal widened (drainage, river, stream basin).

BASIN AND RANGE PHYSIOGRAPHIC PROVINCE. A province in the southwestern United States characterized by a series of tilted fault blocks forming longitudinal ridges or mountains and broad intervening basins.

BIOLOGICAL ASSESSMENT. The gathering and evaluation of information on proposed endangered and threatened species, critical habitat and proposed critical habitat. Required when a management action

potentially conflicts with endangered or threatened species, the biological assessment is the way federal agencies enter into formal consultation with the United States Fish and Wildlife Service (USFWS) and describe a proposed action and the consequences to the species the action would affect.

BIOLOGICAL OPINION. A document prepared by USFWS stating their opinion as to whether or not a federal action will likely jeopardize the continued existence or adversely modify the habitat of a listed threatened or endangered species.

CAMPING (PRIMITIVE). Primitive and dispersed camping is camping that utilizes no facilities, no vehicles and occurs at least 200 yards from a designated road, route, or trail.

CANDIDATE SPECIES. Any species not yet officially listed but which are undergoing a status review or are proposed for listing according to *Federal Register* notices published by the Secretary of the Interior and the Secretary of Commerce.

CLOSED AREA OR TRAIL. Designated areas and trails where recreational uses such as off-road vehicles or mountain bikes are permanently or temporarily prohibited.

COMMERCIAL PHOTOGRAPHY OR FILMING. Includes still or motion photography, photo shoots, and motion pictures for profit or financial gain. Visitors using cameras or recording devices for personal use and not for financial gain are generally exempt from film permit requirements.

COMMUNICATION SITES. Are the parcels of land containing the communication Right-of-Ways (ROWs), not the individual ROW.

COMMUNITY. An assemblage of plant and animal populations in a common spatial arrangement.

CONSERVATION FOR FUTURE USE. This category is reserved for any unusual cultural property, which, because of scarcity, a research potential that surpasses the current state of the art, singular historic importance, cultural importance, architectural interest, or comparable reasons, is not currently available for consideration as the subject of scientific or historical study that would result in its physical alteration. A cultural property included in this category is deemed worthy of segregation from all other land or resource uses, including cultural resource uses, that would threaten the maintenance of its present condition or setting, as pertinent, and will remain in this use category until specified provisions are met in the future.

CONSTRUCTED TRAILS. A defined route or path, which has been prepared or improved for surface stabilization.

COOPERATING AGENCY. The cooperating agency assists the lead federal agency in developing an Environmental Assessment or Environmental Impact Statement (EIS). The Council on Environmental Quality (CEQ) regulations for implementing the National Environmental Policy Act define a cooperating agency as an agency that has jurisdiction by law or special expertise for proposals covered by the National Environmental Policy Act (40 Code of Federal Regulations [CFR] 1501.6). Any federal, State, local government jurisdiction with such qualifications may become a cooperating agency by agreement with the lead agency.

CORRIDOR. A wide strip of land within which a proposed linear facility could be located.

CULTURAL RESOURCES. Cultural resources include archaeological, historic, or architectural sites, structures, or places with important public and scientific uses, and locations of traditional cultural or religious importance to specific social and/or cultural groups.

CUMULATIVE IMPACTS. The impact on the environment that results from the incremental impact of the action when added to other past, present, or reasonably foreseeable future actions, regardless of what agency or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actins taking place over a period of time. Cumulative impacts can result from similar projects or actions, as well as from projects or actions that have similar impacts (40 CFR 1508.7).

DESIGNATED ROADS AND TRAILS. Specific roads and trails where some type of motorized vehicle use is allowed either seasonally or yearlong.

ENDANGERED SPECIES. Any species that is in danger of extinction throughout all or a significant portion of its range.

ENVIRONMENTAL IMPACT STATEMENT (EIS). A formal public document prepared to analyze the impacts on the environment of a proposed project or action and released for comment and review. An EIS must meet the requirements of National Environmental Policy Act, CEQ guidelines, and directives of the agency responsible for the 'proposed project or action.

ENVIRONMENTAL JUSTICE. The fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. Fair treatment means that no group of people, including racial, ethnic, or socioeconomic groups, should bear a disproportionate share of the negative environmental consequences resulting from operations or the execution of federal programs and policies. Executive Order 12898 directs federal agencies to make achieving environmental justice part of their missions by identifying and addressing disproportionately high and adverse effects of agency programs, policies, and activities on minority and low-income populations.

EXISTING ROUTES. The roads, trails, or ways that are used by motorized vehicles, mechanized uses (mountain bikes), pedestrians (hikers), and/or equestrians (horseback riders) and are, to the best of BLM's knowledge, in existence at the time of RMP/EIS publication.

EXCLUSION AREA. Areas with sensitive resource values where rights-of-way and 302 permits, leases, and easements would not be authorized.

EXPERIMENTAL USE. This category may be applied to a cultural property judged well-suited for controlled experimental study, to be conducted by BLM or others concerned with the techniques of managing cultural properties, which would result in the property's alteration, possibly including loss of integrity and destruction of physical elements. Committing cultural properties, or the data they contain, to loss must be justified in terms of specific information that would be gained and how it would aid in the management of other cultural properties. Experimental study should aim toward understanding the kinds and rates of natural or human-caused deterioration, testing the effectiveness of protection measures, or developing new research or interpretation methods and similar kinds of practical management information. It should not be applied to cultural properties with strong research potential, traditional cultural importance, or good public use potential, if it would significantly diminish those uses.

FACILITIES. Anything, such as a Visitor Center trail, trailhead, or sign that is constructed, installed, or established to serve a particular purpose.

GEOCACHING. An outdoor sport or a high-tech version of treasure hunting. Geocachers seek out hidden treasures utilizing global positioning system coordinates posted on the Internet by those hiding the cache. Using a global positioning system unit, players trek out into recreation areas to find the hiding spot of the cache. Once found, a cache may provide the visitor with a wide variety of rewards. If the visitor takes something out of the cache, they are asked to leave something in return. Caches typically consist of a waterproof container discreetly placed within the local terrain. The container will include a logbook and any number of more or less valuable items such as toys, books, money, jewelry, trinkets, etc.

GEOGRAPHIC INFORMATION SYSTEMS (GIS). A computer system capable of capturing, storing, editing, analyzing, and graphically displaying data and describing places on the earth's surface.

HABITAT. A specific set of physical conditions that surround a single species, a group of species, or a large community. In wildlife management, the major components of habitat are considered to be food, water, cover, and living space.

HAZARDOUS MATERIAL. A substance, pollutant, or contaminant that, due to its quantity, concentration, or physical or chemical characteristics, poses a potential hazard to human health and safety or to the environment if released into the workplace or the environment.

IMPACT. The resulting effect of an action whether direct, indirect, or cumulative on a specific resource that may be beneficial or detrimental (adverse).

Direct: Impacts caused by an action occurring at the same time and place.

Indirect: Impacts caused by an action and occurring later in time or farther removed in distance, but still reasonably foreseeable.

Cumulative: Impacts that result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions.

IMPROVEMENT. Construction or physical alteration of the surface designed to protect resources. Improvements may be permanent or temporary depending upon resource protection needs.

IMPLEMENTING DECISIONS. Implementing or project-level decision determine specific management activities and are made to implement the goals and objectives identified in the RMP and must be consistent with RMP guidance; generally authorize a specific management activity to take place in a specific are under specific conditions; and may require a separate and individual environmental document and public notification and involvement process (under National Environmental Policy Act) in order for these specific activities to be authorized. For example, project-level decisions determine design, development, and designation of roads and trails; development of a visitor center; and vegetation restoration projects.

INVASIVE SPECIES. Organisms that were introduced into an environment where they did not evolve.

LAND USE PLAN. A plan that reflects an analysis of activity systems and a carefully studied estimate of future land requirements for expansion, growth control, and revitalization or renewal. The plan shows how development in the area should proceed in the future to ensure the best possible physical environment for living, the most economic and environmentally sensitive use of land, and the proper balance in use from a cost revenue point of view. The land use plan embodies a proposal as to how land

should be used in the future, recognizing local objectives and generally accepted principals of health, safety, convenience, economy, and general living amenities.

LAND USE PLANNING DECISIONS. Land use planning decisions allocate public lands for particular uses, in some cases; guide land use decisions and management actions for 10 years or more; establish goals and objectives, such as desired future conditions of the land; identify lands that are open, closed, or restricted for certain uses; provide the basis for future project- or activity-level analysis and decisions. Planning decisions generally describe what can be done and where, but typically do not authorize specific management activities. For example, planning decisions determine special designation (e.g., recreation management emphasis areas); and areas open, closed, or limited for motorized on nonmotorized vehicle or equipment use.

LIMITS OF ACCEPTABLE CHANGE (LAC). A framework for establishing acceptable and appropriate resource and social conditions in recreation settings; a system of management planning.

LONG-TERM EFFECT. The effect could occur for an extended period after implementation of the alternative. The effect could last several years or more.

MANAGEMENT DECISION. A decision made by BLM to manage public lands. Management decisions include both land use plan decisions and implementing decisions.

MANAGEMENT SITUATION ANALYSIS (MSA). A companion document to the RMP that provides the background documentation for the development of alternatives. An MSA usually consists of the physical profile, existing management situation, and capability analysis.

MONITORING. The periodic and systematic collection of resource data to measure progress toward achieving objectives.

MOTOR VEHICLE. Any vehicle which is self-propelled or any vehicle, which is propelled by electric power obtained from batteries.

MOTORIZED VEHICLES OR USES. Vehicles that are motorized, including but not limited to jeeps, all-terrain vehicles, and trail motorcycles or dirt bikes.

MULTIPLE USE. The management of the public lands and their various resource values so that they are utilized in the combination that will best meet the present and future needs of the American people; making the most judicious use of the land for some or all of these resources related services over area large enough to provide sufficient latitude for periodic adjustments in use to conform to changing needs and conditions; the use of some land for less than all of the resources; a combination of balanced and diverse resource uses that takes into account the long-term needs of future generations for renewable and nonrenewable resources, including, but not limited to, recreation, range, timber, minerals, watershed, wildlife and fish, and natural scenic, scientific and historical values; and harmonious and coordinated management of the various resources without permanent impairment of the productivity of the land and the quality of the environment with consideration being given to the relative values of the resources and not necessarily to the combination of uses that will give the greatest economic return of the greatest unit output (Section 103, FLPMA).

NATIONAL AMBIENT AIR QUALITY STANDARDS (NAAQS). National standards established under the Clean Air Act by the Environmental Protection Agency (EPA). Prescribed levels of pollution in the outdoor air that may not be exceeded. There are two levels of NAAQS: primary, set at a level to

protect the public health from air pollution damage; and secondary, set at a level to protect public welfare from air pollution damage.

NATIONAL REGISTER OF HISTORIC PLACES. A listing of architectural, historical, archaeological, and cultural sites of local, State, or national significance, established by the National Historic Preservation Act and maintained by the National Park Service.

NATURALNESS. Refers to an area that "generally appears to have been affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable" (Set 2[c] of the Wilderness Act of 1964).

NEGLIGIBLE IMPACTS. Impacts that are small in magnitude and importance and difficult or impossible to quantify relative to those occurring naturally or due to other actions.

NON-ATTAINMENT AREA. Any area that does not meet (or that contributes to ambient air quality in a nearby area that does not meet) the national primary or secondary ambient air quality standard for the pollutant.

NOXIOUS WEEDS. A plant species designated by federal or State law as generally possessing one or more of the following characteristics: aggressive and difficult to manage; parasitic; a carrier or host of serious insects or disease; or non-native, new or uncommon to the United States.

OBJECTIVE. A description of a desired condition for a resource. Objectives can be quantified and measured and, where possible, have established time frames for achievement.

OFF-HIGHWAY VEHICLE (OHV). A general term referring to any motorized vehicle capable of operating on roads, trails, or designed areas that are not maintained. These include motorcycles, all terrain vehicles, dune buggies, and four-wheel-drive vehicles. An OHV is a vehicle not required to be state registered for street use.

ORGANIZED GROUP. An organized group has a formal way of coordinating and carrying out its activities, appointed or elected leadership, and may hold periodic meetings. These groups may be affiliated with schools, associations, and community organizations.

PLANNING AREA. The geographical area for which land use and resource management plans are developed and maintained.

PLANNING CRITERIA. The standards, rules, and other factors developed by managers and interdisciplinary teams for their use in forming judgments about decision making, analysis, and data collection during planning. Planning criteria streamline and simplify the resource management planning actions.

PUBLIC LAND. Any land and interest in land (outside of Alaska) owned by the United States and administered by the Secretary of the Interior through the BLM.

PUBLIC USE. This category may be applied to any cultural property found to be appropriate for use as an interpretive exhibit in place, or for related educational and recreational uses by members of the general public.

RECORD OF DECISION (ROD). A document signed by a responsible official recording a decision that was preceded by the preparation of an environmental impact statement.

RECREATION OPPORTUNITY SPECTRUM (ROS). A land delineation system commonly used by federal land management agencies to address the need for a range of recreational opportunities within the planning area.

REGISTERED VEHICLES. Registered vehicles include any motor vehicle that maintains an active tag or registration. The term "Motor Vehicle" includes automobiles, trucks, buses, campers, trailers, and motorcycles.

RESOURCE MANAGEMENT PLAN (RMP). A land use plan that establishes land use allocations, multiple-use guidelines, and management objectives for a given planning area. The RMP planning system has been used by the BLM since about 1980.

REVEGETATE. To provide barren or denuded land with vegetative cover.

RIGHT-OF-WAY (ROW). A permit or an easement that authorizes the use of public lands for certain specified purposes, commonly for pipelines, roads, telephone lines, electric lines, reservoirs, etc.; also, the lands covered by such an easement or permit.

ROADS. Vehicle routes that have been improved and maintained by mechanical means to ensure relatively regular and continuous use.

ROCK HOUNDING. An outdoor activity and/or a hobby in which specialists and amateurs "treasure hunt" for rocks, minerals, and crystals at various geographic areas.

ROUTES. A combination of roads, trails, or ways that are used by motorized vehicles, mechanized uses (mountain bikes), pedestrians (hikers), and/or equestrians (horseback riders).

SCENIC QUALITY. The relative worth of a landscape from a visual perception point of view.

SCENIC QUALITY RATING UNIT. A portion of the landscape, which displays primarily homogenous visual characteristics of the basic landscape features (land and water form, vegetation, and structures.)

SCIENTIFIC USE. This category applies to any cultural property determined to be available for consideration as the subject of scientific or historical study at the present time, using currently available research techniques. Study includes methods that would result in the property's physical alteration or destruction. This category applies almost entirely to prehistoric and historic archaeological properties, where the method of use is generally archaeological excavation, controlled surface collection, and/or controlled recordation (data recovery). Recommendations to allocate individual properties to this use must be based on documentation of the kinds of data the property is thought to contain and the data's importance for pursuing specified research topics. Properties in this category need not be conserved in the face of a research or data recovery (mitigation) proposal that would make adequate and appropriate use of the property's research importance.

SENSITIVE RESOURCE AREAS. Sensitive Resource Areas are areas containing stabilized sand dunes, sensitive plant areas, raptor nesting concentration areas, prairie dog towns, two-mile buffer around

sage-grouse leks, mountain plover aggregation areas or potential habitat, big game migration corridors and crucial big game winter ranges, and areas with high-density cultural or paleontological resource sites. Field inspections by BLM will be conducted to verify presence of these resource values and potential impacts prior to considering authorization of any proposed development activity on federal surface and/or minerals.

SENSITIVE SPECIES. Species not yet officially listed but that are undergoing status review for listing on the USFWS official threatened and endangered list; species whose populations are small and widely dispersed or restricted to a few localities; and species whose numbers are declining so rapidly that official listing may be necessary.

SCOPING PROCESS. An early and open public participation process for determining the scope of issues to be addressed and for identifying the significant issues related to a proposed action or project.

SHORT-TERM EFFECT. The effect occurs only during or immediately after implementation of the alternative or action.

SOCIAL TRAILS. Visible paths created by repeated human use of routes where no formal trail has been designated or constructed.

SOLITUDE. The state of being alone or remote from habitations or isolation. A lonely, unfrequented, or secluded place. Factors contributing to opportunities for solitude may include size, natural screening, topographic relief, vistas, physiographic variety, and the ability of the user to find a secluded spot.

SPECIAL RECREATION MANAGEMENT AREA (SRMA). An area that possesses outdoor recreation resources or where recreation use causes significant user conflicts, visitor safety problems, or resource damage. SRMAs are established to direct recreation funding and personnel to lands where a commitment has been made to provide a specific recreation activity or experience and public benefit opportunities. This includes a long-term commitment to managing the physical, social, and managerial settings to sustain these activities, experiences, and benefit opportunities.

SPECIAL RECREATION PERMIT (SRP). Various recreational uses that could occur within the NCA require a special recreation permit (SRP). SRPs would be issued consistent with the purposes of the NCA and Wilderness to disperse visitor use, protect natural resources, provide for the health and safety of visitors, and provide a fair return for the commercial recreational use of public lands. Activities requiring an SRP include commercial use, competitive use, vending, and organized group activity and event use.

SPECIAL STATUS SPECIES. Plant or animal species known or suspected to be limited in distribution, rare or uncommon within a specific area, and/or vulnerable to activities which may affect their survival. Wildlife and plant species can either be federally listed, proposed for listing, or a candidate as endangered or threatened, state-listed, or BLM determined priority species.

STATE IMPLEMENTATION PLAN (SIP). A plan through which a state institutes air quality protection measures that meet federal criteria. When approved by EPA, the State is delegated federal authority for air quality regulation.

THREATENED SPECIES. Any species or significant population of that species likely to become endangered within the foreseeable future throughout all or a significant portion of its range. Usually includes only those species that have been recognized and listed as threatened by federal and State governments, but may include species categorized as rare, very rare, or depleted

TRADITIONAL USE. This category is to be applied to any cultural resource known to be perceived by a specified social and/or cultural group as important in maintaining the cultural identity, heritage, or well being of the group. Cultural properties assigned to this category are to be managed in ways that recognize the importance ascribed to them and seek to accommodate their continuing traditional use.

TRIBE. Any Native American or Indian group in the continuous United States that the Secretary of Interior recognizes as possessing Tribal status (listed periodically in the *Federal Register*).

VALID EXISTING RIGHTS. Legal interests that attach to a land or mineral estate that cannot be divested from the estate until that interest expires or is relinquished.

VEGETATION TYPE. A plant community with immediately distinguishable characteristics based upon and named after the apparent dominant plant species.

VISITOR USE. Passive or active recreational activity on public land, which may involve either consumptive or non-consumptive use of the resources. Visitor use of the wilderness resource for inspiration, stimulation, solitude, relaxation, education, pleasure, or satisfaction.

VISUAL RESOURCES. The visible physical features on a landscape, topography, water, vegetation, animals, structures, and other features that comprise the scenery of the area.

VISUAL RESOURCE MANAGEMENT (VRM). The inventory and planning actions taken to identify visual resource values and to establish objectives for managing those values, and the management actions taken to achieve the visual resource management objectives.

VISUAL RESOURCE MANAGEMENT CLASSES. VRM classes identify the degree of acceptable visual change within a characteristic landscape. A classification is assigned to public lands based on the guidelines established for scenic quality, visual sensitivity, and visibility.

WILDERNESS AREA. An area designated by Congress as defined by the Wilderness Act of 1964 as a place "where the earth and it community of life are untrammeled by man, where man himself is a visitor who does not remain." Designation is aimed at ensuring that these lands are preserved and protected in their natural condition. Wilderness areas, which are opportunities for solitude or a primitive and unconfined type of recreation; such areas may also contain ecological, geological, or other features that have scientific, scenic, or historical value.

WILDERNESS CHARACTERISTICS. Identified by Congress in the Wilderness Act of 1964, namely, size, naturalness, outstanding opportunities for solitude or a primitive and unconfined type of recreation, and supplemental values such as geological, archaeological, historical, ecological, scenic, or other features. The definition contained in Section 2(c) of the Wilderness Act of 1964 (78 Stat. 891)

WILDERNESS STUDY AREA (WSA). An area designated by federal agency as having wilderness characteristics, thus making it worthy of consideration by Congress for wilderness designation. While Congress considers whether to designate a WSA as permanent wilderness, the federal agency managing the WSA does so in a manner as to prevent impairment of the area's suitability for wilderness designation.

WILDFIRE. An unwanted wildland fire, regardless of ignition source, which is unplanned, has escaped control, or does not meet management objectives and therefore requires a suppression response.

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